

Issue 1 2010

# **coal energy**

From the Mine to the Utility

**Profile**

**Bill Raney**

*President of the West Virginia Coal Association*

Feature:

**Global Cooling**

World News:

**Coal in India**

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**Profile**  
Bill Raney

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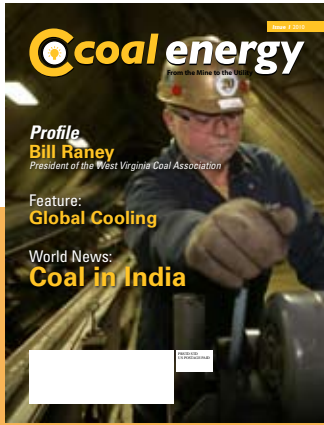
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# letter from the publisher

Dear Readers,

Welcome to 2010 & welcome to the first edition of the year! *Coal Energy* is quickly becoming a source for the industry's professionals to rely on. Thank you to our loyal readers and supporters. Remember *Coal Energy* is the only publication reaching all four of the coal industry associations, including the National Coal Transportation Association, the American Coal Council, the American Coal Ash Association & RMEL.

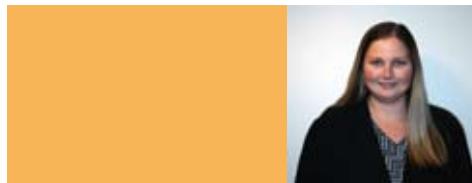
In this issue, we meet Bill Raney, the President of the West Virginia coal association. We also investigate global cooling and analyze opinions on nature's control versus man's control of our climate. We take a look at AKJ's new underground dust suppression products in our product spotlight & glance at India in our world news department.

If there is anything in particular that you would like to see covered in *Coal Energy*, please email me at [maria@martonickpublications.com](mailto:maria@martonickpublications.com). Be sure to take a look at our submitted industry events for up-to-date conference details for all coal-related associations.

As this issue goes to press, we are saddened by the recent tragedy at the Upper Big Branch mine. We would like to extend our deepest condolences to the families of the 29 fallen miners. These individuals are heroes who have died for the American people. Let it remind those of us in the industry of the efforts put forth in the mines to provide energy for the American people. Stay tuned for a special edition honoring each and every miner who lost their lives. 🙏

Warmest regards,

**Maria Martonick**  
President  
Martonick Publications, Inc.



# Association Comparisons

## AMERICAN SOCIETY OF MINING AND RECLAMATION

### Mission

ASMR, American Society of Mining and Reclamation, was established in 1983 to serve the mining and reclamation community as an outlet for scientific research and demonstration papers through annual National meetings. These reclamation projects include activities associated with all kinds of drastically disturbed lands.

**Originated in:** 1983  
**Dues:** \$50 - \$1000  
**For more information:**  
<http://fp1.ca.uky.edu/asmr/>

## AMERICAN COAL ASH ASSOCIATION

### Mission

The ACAA advances the management and use of coal combustion products in ways that are environmentally responsible, technically sound, commercially competitive and more supportive of a sustainable global community.

**Originated in:** Not listed  
**Dues:** \$1650 - \$13500  
**For more information:**  
[www.acaa-usa.org](http://www.acaa-usa.org)

## RMEL

### Mission

It is RMEL's mission to provide a forum for education and the sharing of ideas to better serve the electric energy industry and its customers.

**Originated in:** 1903  
**Dues:** \$200 - \$3250  
**For more information:**  
[www.rmel.org](http://www.rmel.org)

## NATIONAL MINING ASSOCIATION

### Mission

NMA is the public policy voice of one of America's great basic industries whose primary mission is helping the nation realize the contribution made to our economic well-being and quality of life by resources derived from mining.

**Originated in:** Not listed  
**Dues:** Not listed  
**For more information:**  
[www.nma.org](http://www.nma.org)





## AMERICAN COAL COUNCIL

### Mission

The American Coal Council (ACC) is dedicated to advancing the development and utilization of coal as an economic, abundant/secure and environmentally sound energy fuel source. The Association promotes the lawful exchange of ideas and information regarding the coal industry. It serves as an essential resource for companies that mine, sell, trade, transport or consume coal. The ACC provides educational programs, advocacy support, peer-to-peer networking forums and market intelligence that allow members to advance their marketing and management capabilities.

**Originated in:** 1982

**Dues:** \$2500

**For more information:**

[www.americancoalcouncil.org](http://www.americancoalcouncil.org)

## NATIONAL COAL TRANSPORTATION ASSOCIATION

### Mission

The Mission of the NCTA is to provide education and facilitation for the resolution of coal transportation issues in order to serve the needs of the general public, industry, and all modes of transportation. This is accomplished through the sponsoring of educational fora and providing opportunities for the lawful exchange of ideas and knowledge with all elements of the coal transportation infrastructure.

**Originated in:** Not listed

**Dues:** \$1250

**For more information:**

[www.nationalcoaltransportation.org](http://www.nationalcoaltransportation.org)

To have your coal industry association or organization included in the next issue of Coal Energy, please send information to [info@martonickpublications.com](mailto:info@martonickpublications.com).



# Global Cooling

By Jessica Warshaver

On April 28, 1975, Newsweek published an article called “The Cooling World,” an exposé of the declining temperatures throughout the globe. Its author, Peter Gwynne, warned of imminent food shortages and drought.

The one-page feature was littered with loaded terms, such as “ominous signs,” “drastic decline,” and “Ice Age.” Gwynne cited a reduced growing season in England and an outbreak of tornadoes in America as evidence of this cooling age that was looming in Earth’s future.

Gwynne also reported that, to many climatologists’ dismay, politicians were unlikely to take any progressive steps toward solving the climate crisis.

Thirty-five years later, Gwynne’s words prove to be wrong. Politicians are taking action toward the climate crisis—albeit, a completely different crisis than the one illustrated in Newsweek more than three decades earlier.

## ■ A Devisive Forecast

In a December 2008 episode of CNN’s “Lou Dobbs Tonight” show, a meteorologist weighed in on the state of our globe’s climate change.

Chad Myers was forecasting unprecedented levels of snow in Las

Vegas when Dobbs asked him for his opinion on global warming.

“To think that we [humans] could affect weather all that much is pretty arrogant,” Myers said. “We have 100 years worth of data, not millions of years that the world’s been around.”

A year earlier, CNN meteorologist Rob Marciano reported that a British judge might ban Al Gore’s 2006 film “An Inconvenient Truth” from UK schools because it is “politically biased and contains scientific inaccuracies.”

Marciano went on to say he disagreed with the implication that Katrina was caused by global warming.

The next day, following the strong Internet response his opinions evoked, Marciano retracted his statements, conceding that “the globe is getting warmer and humans are likely the main cause of it.”

These men aren’t scientists or academics, but their words reflect a debate that has seethed for decades. Our planet is constantly changing, and weather patterns have been varied in recorded history. But how much of this change is induced by mankind?

## ■ Climategate

The issue came to a head in November 2009, when a whistle-



blower from the University of East Anglia Climatic Research Unit, a major center of global warming research, revealed a collection of e-mails and manipulated data exchanged by some of the center's most prominent scientists.

Articles and blog entries on the subject soon cropped up, pointing fingers at key players involved in the scandal, since dubbed "Climategate."

In December, a month after the e-mails were released, the non-profit research institute Science and Public Policy Institute (SPPI) released a report entitled "Climategate: Caught Green-Handed!" The document contains pages of bold, red words and about two dozen graphs that supposedly disprove the politically fueled theory that mankind is responsible for the unprecedented rate in which Earth is warming.

Voices from all sides of the argument have since resounded on Internet blogs and editorials, both from educated speakers and laymen.

Aker Technical Services' Senior Process Engineer Richard Ranich was initially attracted to the debate upon the release of Al Gore's film and has attempted to contact many of those involved in climate change research.

Ranich's efforts to get straightforward responses have been, for the most part, unsuccessful. He has grown skeptical of the "trend-chasing" academic community, which pushes popular causes in order to get research funding, he said.

"I attended graduate school for two and a half years, so I am familiar with the 'publish or perish' mantra," Ranich said. "I guess I am a bit of a cynic about the shift by academicians."

The larger peddler of misinformation behind the academics is the government, he said. Politicians view global warming as an opportunity to exert control over the industry by taxing carbon dioxide emissions, he said.

"Sounds like a marriage made in heaven: same agenda, different goals," Ranich said. Like Myers, Ranich also believes it is arrogant to think people are more powerful than the forces of nature and the universe. Since weather records are only about 150 years old, he said, the sample size of even 200 years is too small to draw conclusions. And what of the known climate changes of history, which occurred too long ago to have been caused by human interference with the environment?

"How did the earth get warm enough that the Vikings named Greenland, which is now ice-covered?" Ranich said. "Melting glaciers formed the Great Lakes. Did cavemen drive CO<sub>2</sub>-spewing SUVs causing the glaciers to melt?"

These examples of historical climate change are likely due to the Earth's warming and cooling cycles, a truth that has long been accepted, according to S. Fred Singer and Dennis Avery, authors of "Unstoppable Global Warming – Every 1,500 Years." The current

warming trend, Singer and Avery said, is part of a 1,500-year cycle of moderate temperature swings. These warming-cooling cycles occur within the broad 90,000-year Ice Age cycles.

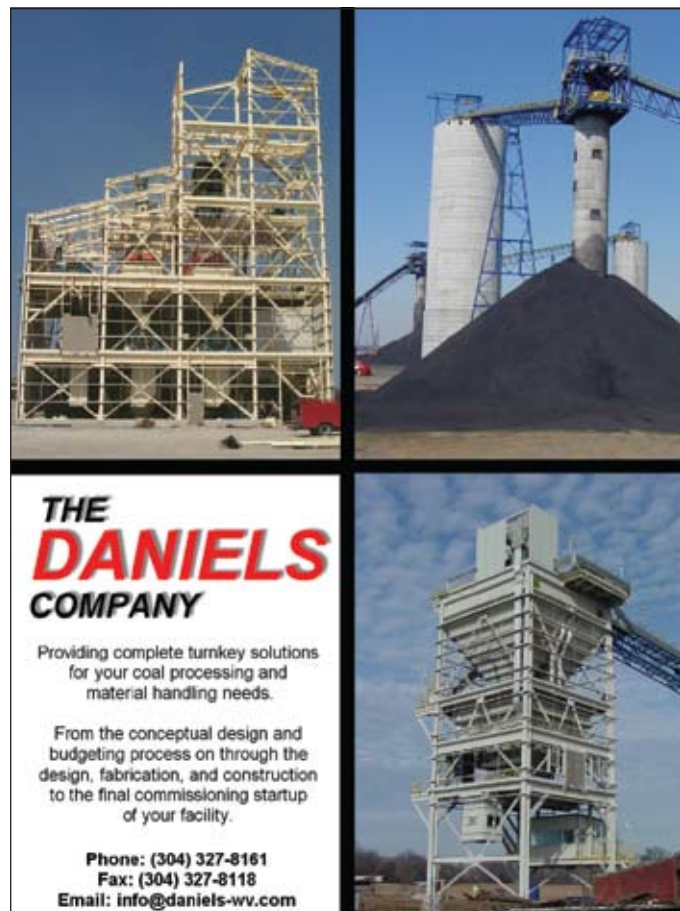
#### ■ On thin Ice

In December 1997, a global warming agreement was written in Kyoto, Japan that proposed limits on greenhouse gases. Alarmed dissenters of the global warming theory have mobilized to prevent this agreement and other similar proposals to be signed. More than 31,000 scientists have signed the Oregon Institute of Science and Medicine's petition supporting the issue.

"The United States is very close to adopting an international agreement that would ration the use of energy and of technologies that depend upon coal, oil and natural gas and some other organic compounds," said Frederick Seitz of OISM.

In 2006, prompted by Oklahoma Senator James Inhofe's speech to the Senate on September 25, Newsweek issued a 1,000-word retraction of its statements more than three decades earlier. Senior Editor Jerry Adler contended that the article was "spectacularly wrong about the near-term future."

The article may not have been completely accurate, but this thirty-years-late correction does not erase the existence of the early theory. The debate will continue to boil, but make sure to watch the weather report – you might learn something. 🌍



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# AKJ Underground Dust Suppression

BY JESSICA WARSHAVER

AKJ Industries understands the many challenges the mining industry is confronted with in the underground mining process. Since the Health and Safety Act more than 40 years ago, the coal industry has experienced many changes in the production process. During this time period the first dust standard was  $3/\text{mg}^3$ , and ventilation requirements and equipment spray systems were minimal. Today, mined coal seams yield 50 to 60 percent recovery rates, and the dust standard is now set at  $2/\text{mg}^3$  with a “reduced standard clause” when silica contamination is likely.

An underground mine generates fugitive dust several ways, the most prominent being the cutter heads on the continuous mining machine, face equipment traffic and roof-bolting activities. Coal conveyance and supply roadway traffic also create respirable dust, and these activities generate particles that range from 200 to 10 microns in size. The particles that are 10 microns or less are classified as respirable dust, which the Mine Safety and Health Administration (MSHA) collects.

The heavier particles are then thrown off. The average weight of these samples must not exceed  $2\text{mgs}/\text{m}^3$ , and it is also not uncommon to contaminate them with quartz when mining seams that are layered with sandstone rock. This causes the dust standard to drop below  $2\text{mgs}/\text{m}^3$ , and corrective action must be taken.

This is where AKJ wants to contribute to the mining industry, and its primary role in ensuring compliance with dust levels in the underground workplace has been with wetting agent chemistry and technology. In face dust suppression, adequate volumes of air must sweep the face areas and carry fugitive dust to return air courses, and water sprays are provided at impact areas such as the continuous miner and feeder breaker.


AKJ Industries has implemented many dust suppression programs for the underground mining industry over the last fifteen years. Its efforts have been particularly successful with mines that have low recovery rates where shale and sandstone

are a part of the mining seam. These conditions make it difficult to maintain dust compliance using only water spray and ventilation resources at its maximum.

The success of AKJ's techniques is illustrated in Graph 1, which represents a continuous mining section. Five production shifts are shown, one line representing a shift using only water and one line using a 200/1 ratio mixture of AKJ-852 wetting agent. Here, AKJ's treatment reduced dust levels 30 to 60 percent.

The company has designed three basic systems for underground use, but each of them delivers a preset solution ratio determined by mine management. The single section system can be located on both the surface and underground mining section, has a compact construction that allows for equipment moves and is enabled with a flow meter for the water line to

provide cost-effective feed rates. The multi-section system is usually located on the surface of a mine or in a general underground area and has the capability to maintain exact water-to-chemical ratios for various water demands. The long wall application system, which differs somewhat from conventional dust suppression systems, has an electrical power center located at the long wall section that determines application rates.

AKJ prefers to meet with mine management when selecting a program for underground dust suppression to tailor a program that is specific to the mine. Its objective is to review compliance history, geological conditions, mine layout and equipment resources. AKJ is also able to provide instantaneous readings of respirable dust concentrations in mg/m<sup>3</sup>, which is critical information when developing a program to fit a specific mining process. 

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# Obama Updates

*The Obama Administration has struck several blows against coal recently, but the crucial question of how the proposed climate change and energy legislation will take shape is up to Congress.*

BY TRAVIS PILLLOW

Just weeks before the 2008 presidential election, the Ohio Coal Association issued a statement that echoed sentiments felt throughout the industry: *“The Obama-Biden ticket spells disaster for America’s coal industry and the tens of thousands of Americans who work in it.”*

To be sure, the President Barack Obama has long supported initiatives to promote wind, solar and biofuels as alternative energy sources. His campaign’s environmental plan included a promise to reinvigorate the EPA, and so far this year, the EPA has issued regulations curtailing mountaintop mining and setting limits for auto emissions, which could be a prelude to restrictions on fixed sources of carbon dioxide, the lion’s share of which comes from coal-burning power plants.

However, the health care debate showed Obama’s willingness to compromise with industry even as he talked tough in public. As with the health care bill, the president has outsourced the actual shaping of forthcoming climate change and energy legislation to Congress, in this case under the leadership of Senators Joseph Lieberman, Lindsey Graham and John Kerry.

The Obama EPA could crack down on carbon emissions in the next year, using its authority under the Clean Air Act, especially if the legislative process fails to produce a comprehensive energy bill. The Alliance for Energy and Economic growth, a coalition led by the U.S. Chamber of Commerce that includes coal suppliers, privately held utilities and other business groups, is currently pushing to ensure the bill provides adequate incentives for conservation and emissions reductions without constraining America’s domestic energy supply.

## Coal in the Crosshairs

Climate scientist and advocate James Hansen has said that building a low-carbon economy means eliminating coal - which he has called “the single greatest threat to civilization and all life on our planet” - as a source of energy over the next several decades, a sentiment shared by many environmentalists. However, coal currently supplies just under half of America’s electricity, according to the U.S. Energy Information Administration, and worldwide coal demand is expected to increase nearly 50 percent by 2030.

The EIA has predicted that carbon dioxide emissions will increase by approximately 33 percent from 2005 levels by 2030 if no action is taken. In January, Obama pledged to reduce U.S. emissions to 17 percent below 2005 levels by 2020. To achieve that target without disrupting America's energy supplies, coal-fired power plants will have to implement carbon capture and sequestration technology (CCS) at an ambitious scale.

According to the International Energy Agency, CCS provides the most cost-effective solution for cutting emissions to 2005 levels by 2050, reducing the expense of reaching that goal by up to 70 percent compared to other methods.

Given that the main challenges are improving existing carbon-capture technology and applying it at a commercial scale, funding for research and development will be essential. The IEA has called for the governments of industrialized nations to invest a minimum of \$3.5 billion a year in CCS demonstrations starting in 2010, and to provide tax credits and other incentives on top of that.

The stimulus bill passed in 2009 provided about \$3.4 billion for CCS projects, including \$1 billion for FutureGen, the first zero-emission coal-fired plant in the United States, and another \$800 billion for the Clean Coal Power Initiative. The government still needs to develop a permanent, coherent policy for emissions reduction. The cost of a single commercial-scale CCS project can easily exceed \$1 billion, so a handful of projects have largely exhausted the stimulus funds.

## The New Uncertainties of Coal Extraction

Since his election, Obama felt pressure from Hansen and his cohort to end "mountaintop removal," a practice the industry has considered essential to maximizing extraction in the shallow coal veins of the ancient and glacier-worn Appalachian Mountains.

On April 1, the Environmental Protection Agency issued new guidance expected to curtail mountaintop mining, which currently accounts for some 10 percent of coal extraction in the United States. The new regulations, which limit the salinity in

mountain stream beds to 500 microSiemens per cubic centimeter, echo an effort by the outgoing Clinton Administration that was rescinded under George W. Bush before it could have any effect.

Between 2000 and 2008, the EPA issued permits for 511 valley fills, in which excess rock removed to expose mountaintop coal beds is piled up in surrounding valleys, according to the Washington Post. Those permits will now be much more difficult - if not impossible - to obtain.

While new rules are almost certain to increase extraction costs, they end 15 months of uncertainty. The EPA under Obama had been issuing permits for some valley fills and not for



others, making it difficult for mining firms to assess whether new surface mines would clear regulatory hurdles. Under the new rules, according to EPA director Lisa Jackson, virtually no valley-fill projects are likely to be approved. The additional costs of labor and transportation required to move tons of rubble away from surface-mining sites are likely to render some supplies commercially inaccessible.

The regulations will affect future and proposed projects, but the day after it issued the new valley-fill guidelines, the EPA took the unprecedented step of vetoing the permit for West Virginia's largest surface mine, Mingo Logan Coal Co.'s Spruce Fork No. 1, which had already been approved.

The EPA is accepting public comments on the changes, but whether any new surface mining proposals will be able to move forward remains in doubt.

>> **Feature:** Obama Updates

“Permits issued under the Clean Water Act affect nearly 80,000 direct coal mining jobs in Appalachia, as well as the coal to power nearly 80 million homes and U.S. steel production, which relies on Appalachian coal for more than 95 percent of the coal it requires for manufacture,” the National Mining Association said in response to the rules.

## Hope for Change

In his State of the Union Address, Obama said, “We need more production, more efficiency, more incentives. That means building a new generation of safe, clean nuclear power plants in this country. It means continued investment in advanced biofuels and clean coal technologies. And yes, it means passing a comprehensive energy and climate bill with incentives that will finally make clean energy the profitable kind of energy in America.”

For those goals - as well as the Obama administration’s goal of revamping domestic manufacturing - to be achieved, the administration will need to provide incentives commensurate with its ambitions. When the 1990 Clean Air Act sought to limit sulfur dioxide emissions under a cap-and-trade framework, the coal industry exceeded expectations, delivering drastic reductions at relatively low cost.

Repeating those successes will not be easy. The investments required to achieve large-scale CCS implementations are much larger. Efforts to map carbon storage sites and fund pilot projects, both of which were supported by the stimulus plan, will need to continue and expand.

A cap-and-trade program like the one proposed under last year’s Waxman-Markey legislation, which provided allowances for power plants that they can sell once they cut their own emissions, must create a functioning market in which emissions permits become marketable assets that reward innovation without crippling an essential source of energy. The Waxman-Markey bill would have limited annual economic growth by up to 0.09 percent annually, according to the Congressional Budget Office.

The question is whether Obama will side with the hard-line environmentalists and come to see coal as an enemy to be vanquished at all costs, or help members of Congress to seek the middle ground by embracing the innovations necessary to make America’s largest and most affordable source of domestic energy a viable part of a low-carbon future. In part, it is up to the industry to help answer that question, by proving it can deliver affordable emissions reductions using CCS and other technologies. 🍎



# COMPANY PROFILE



Eriez is world leader in magnetic, vibratory, inspection and flotation technology for the process and metalworking industries. The company designs and manufactures equipment to move, remove or concentrate material; feed, screen or convey materials; and inspect product through metal detection and x-ray technology.

In 1941, Orange Fowler Merwin, or "O.F." as he was known, sold equipment to grain millers. Among the most common complaints heard from his customers were about "tramp iron" - stray pieces of metal, such as bits of wire, nails and bolts, even horseshoes and hammers, that somehow found their way into the grain the farmers brought to the mills for grinding.

Merwin investigated a new magnetic alloy called "alnico" (a combination of aluminum, nickel, cobalt and iron), which possessed exceptional magnetic qualities, including peak magnetic strength up to 30 times that of cobalt steel. He devised a permanent magnetic separator in 1942, sold it to a grain miller and his company was on its way.


Through innovation, organization and diversification, Eriez Magnetics has evolved into a technologically advanced, financially sound, international company with manufacturing facilities in Australia, Brazil, Canada, China, Europe, India, Japan, Mexico and South Africa, as well as its Erie, Pennsylvania, U.S.A. headquarters. Eriez has sales offices across the United States and some 80 international markets on five continents.

Eriez' company philosophy is reflected in their Mission Statement: "Using the golden rule as guide - to build a worldwide organization that will give our CUSTOMERS high-quality products and services at an affordable price commensurate with good service before and after the sale; our ASSOCIATES the best possible job

opportunity and work satisfaction; our SUPPLIERS every opportunity to sell their products and services in an atmosphere of courtesy and trust and at prices that will allow them to make a fair profit; and our STOCKHOLDERS a reasonable continuing return on their investment. Recognizing our social responsibilities to the COMMUNITIES in which we operate, we will strive to conduct our affairs in such an efficient, capable, and friendly manner that everyone with whom we come in contact will be happy to be associated with us."

Eriez' advances in fine coal recovery were accomplished with a new column flotation and sparging system capable of effectively floating both classified and unclassified coal fines. Eriez-CPT CoalPro flotation columns are used extensively in major coal preparation plants across North America and are gaining international acceptance.

"Benefits of the CoalPro include low capital, operating and maintenance costs, ease of operation, no large aeration pumps, large feed or recirculation pumps and patented SlamJet® technology with automatic fail closure on loss of air" says Keith Jones, Director of Corporate Communications.

When asked what the greatest challenge is to the industry Keith replied "We see the greatest challenge to the industry as its ability to more rapidly embrace eco-friendly process changes. Eriez continues to educate the marketplace as to the benefits of alternative equipment." Eriez' future goals include the continued development of innovative equipment to improve coal processing technology. 

## EQUIPMENT OVERVIEW

Eriez' wide array of products was developed to assist in the processing of coal. No other source designs, manufactures and locally supports such a variety of equipment to convey, clean and analyze coal. Eriez is truly a one-stop resource.

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### WET DRUM MAGNETIC SEPARATORS

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### BIN VIBRATORS

Totally enclosed, electromagnetic Bin Vibrators provide "pinpoint" vibration, maintain free flow from small hoppers up to large bunkers with reinforced heavy steel plate and liners. A wide variety of sizes, AC operation, low power consumption and simple controls make Eriez' Bin Vibrators the ideal choice.

### METAL DETECTORS

Eriez offers a variety of Metal Detectors, each designed for easy installation on existing conveyor systems — without cutting the belt! They are sensitive to ferrous and nonferrous metals and are built for rugged outdoor use.

### HEAVY DUTY VIBRATORY FEEDERS, CONVEYORS & SCREENERS

Eriez' Hi-Vi electromagnetic design allows AC operation for up to 68% less power consumption than competitive units. A 20% higher feed rate, encapsulated coils, heavy duty construction and a three year warranty make Eriez Heavy Duty feeders the smart choice.



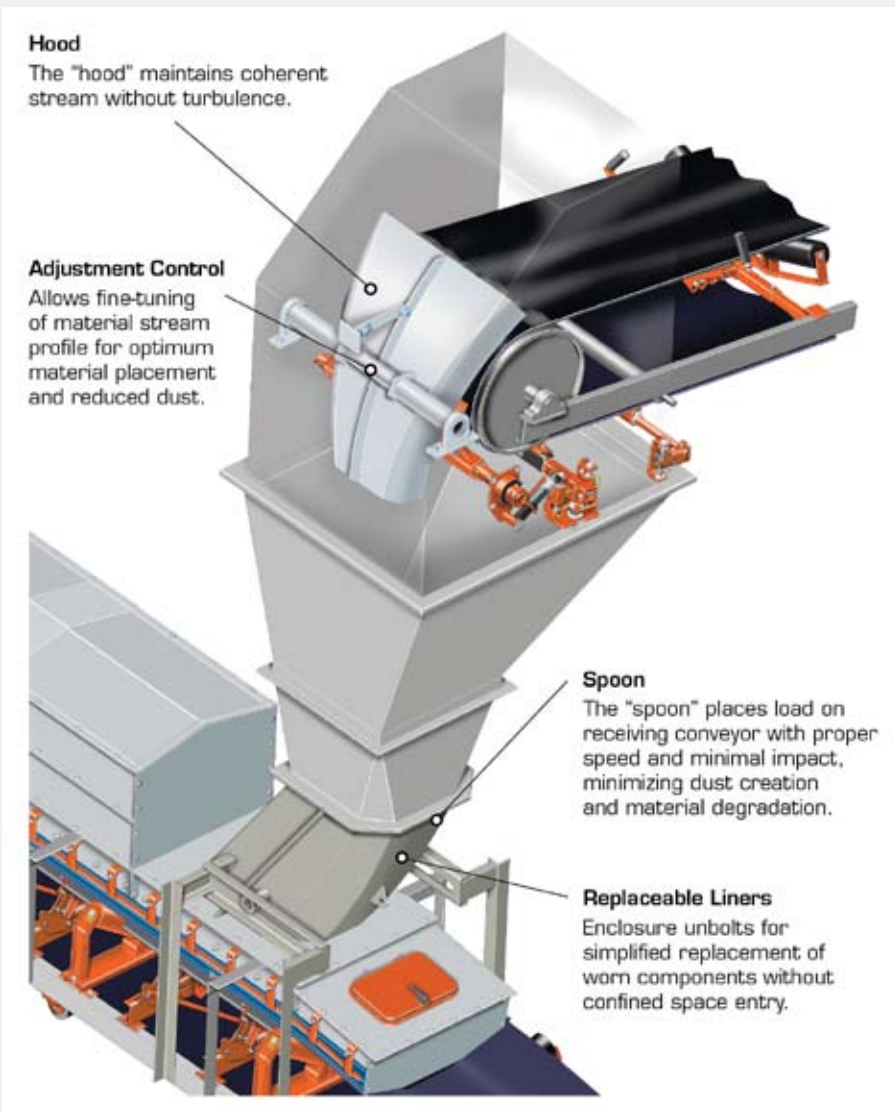
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## Custom-Engineered Transfer Chutes Improve Conveyor Loading, Reduce Blockages

(Neponset, IL) – One of the world’s most experienced suppliers of bulk materials handling equipment has introduced custom-engineered transfer chutes, helping to deliver material control from the time it leaves the conveyor discharge pulley until it reaches the receiving belt. By managing the material speed and direction, MARTIN® Inertial Flow™ Transfer Chutes can minimize impact and wear on liners and belts, while containing the dust and spillage that are often generated at transfer points.

The engineered flow chutes employ special geometries that capture and concentrate the material stream as it travels through the chute. Every design is tailored to suit the specific material characteristics and conveyor systems of the individual customer, rather than using stock products and attempting to make them work. Inertial Flow Transfer Chutes from Martin Engineering provide the dual benefits of minimizing aeration and preventing buildup within the chute, particularly important when dealing with combustible materials.

“Transfer points should never be a production bottleneck,” commented Martin Product Development Engineer Justin



The low-impact loading and controlled airflow of MARTIN® Inertial Flow™ Transfer Chutes can help eliminate the need for baghouse dust collection.



## >> In the Press

Malohn. “By testing the customer’s specific bulk material and applying those properties as the initial step in chute design, we can develop a transfer that meets capacity while minimizing the potential for build-up and chute plugging,” he said.

MARTIN Inertial Flow Transfer Chutes also incorporate replaceable liners, allowing operators to unbolt the enclosure for simplified replacement of worn components without confined space entry.

### Engineered Flow Transfers

Engineered chutes typically employ a “hood and spoon” transfer, with the hood discharge chute at the top of the system and a spoon receiving chute to place material onto the belt being loaded. Martin Engineering components are custom-designed to suit the characteristics of the conveyed product and the materials used for chute construction.

“The hood minimizes expansion of the material stream, directing it downward,” Malohn explained. “The spoon provides a curved loading chute for a smooth line of descent, consistently feeding the material at a specific speed and direction to minimize impact in the loading zone.”

The goal is to confine the material stream and reduce air entrainment, while directing the moving material onto the receiving belt with minimal impact. Successful designs reduces spillage, abrasion, dust and premature wear. This control also helps ensure that material is center-loaded on the belt, avoiding mistracking and fugitive material.

To achieve the optimum hood, spoon and settling area, engineered flow chutes from Martin Engineering are designed using 3-D computer-based flow and modeling to define the geometry. “The direction and force of impact should maintain as much momentum as possible, ideally with an impact angle of no more than 8-12 degrees,” Malohn said.

Designers use detailed information about the specific material characteristics and the parameters of the conveyor system itself, including the feed system, belt properties, support structure and transfer distances. Martin Engineering also has in-house capability to perform comprehensive bulk material testing to obtain critical friction values, using customer-specific materials, belt construction and liner materials.

By controlling the velocity and force of impact in the load zone to match the belt speed and direction, the engineered systems mitigate material splash, turbulence and dust. The low-turbulence, low-impact loading and controlled airflow can eliminate the need for baghouse dust collection systems, and the stable material path contributes to improved transfer, while minimizing belt abrasion and spillage.

Founded in 1944, Martin Engineering is the world leader in making bulk materials handling cleaner, safer and more productive. The company is headquartered in Neponset, IL (USA), with global reach from operations in Brazil, China, France, Germany, Indonesia, Mexico, South Africa, Turkey and the UK. Martin Engineering products are available from business units and authorized representatives around the world.



Custom-engineered transfer chutes confine the material stream and reduce air entrainment, helping to minimize spillage, abrasion, dust and premature wear.

US and corresponding foreign patents issued and pending. ® Registered trademark of Martin Engineering Company in the US and other select locations. © 2010 Martin Engineering Company. All rights reserved. Additional information can be obtained at [www.martin-eng.com/trademarks](http://www.martin-eng.com/trademarks).

## Peabody Energy Chairman and CEO Calls China ‘An Economic Miracle Powered by Coal’

BEIJING, April 12, 2010 /PRNews-wire via COMTEX/ --Peabody Energy Chairman and Chief Executive Officer Gregory H. Boyce today delivered the keynote address at Coaltrans China in Beijing, observing that: “There is no

more fitting backdrop to demonstrate the power of coal to lift societies and the power of technology to change the color of coal.”

Boyce said it is no coincidence that

China is the world’s largest coal user. “The world’s fastest-growing coal market is accomplishing what no other nation has... navigating industrialization, urbanization and modernization all at once. More than any other nation in the

world... China is an economic miracle that is powered by coal.”

Boyce also noted that China is participating in the global technology revolution to develop advanced coal plants like GreenGen for low-carbon economies. Ultimately these plants will be virtually emission-free, which Boyce calls “making black the new green.”

Through greater use of green coal, nations can secure their energy supplies, strengthen economies and advance their environmental goals... the ‘Three Es.’ “Every day, we must use more coal... more cleanly... to benefit the world’s people and economies,” Boyce said. The global population will grow 25 percent to more than 8 billion people by 2030, and the world’s energy needs will increase 40 percent. This growth comes at a time when more than half the world’s population lacks adequate access to electricity.

“So we have the dual challenge of providing electricity to the 3.6 billion people who aren’t properly connected and expanding infrastructure to another 2 billion people who will be added to the grid.”

Says Boyce: “The most pressing global crisis we face is the energy crisis affecting billions who lack adequate access to a basic necessity. The opportunity? More

green coal. Coal is the only large-scale, sustainable fuel capable of meeting the demands of the world’s major economies... and technology is the right path to accomplish our energy, economic and environmental goals.”

Boyce also commented on coal-based solutions to achieve each of society’s ‘Three E’ goals:

### Energy Security

“Coal is the future fuel to provide electricity at scale: Coal demand will continue to outpace other energy sources and is forecast to grow 53 percent by 2030... which is more than 1.5 times the combined growth rate of all other energy sources including oil, gas, nuclear and hydro.

“The world has trillions of tons of coal, which comprise 60 percent of our global energy resources... And we will use them all! Reserves are large and geographically diverse, spanning nations on every major continent.”

### Economic Progress

“250 gigawatts of coal-fueled generation are under construction worldwide. This represents 950 million tonnes of incremental coal demand per year, along with 4.5 million jobs and \$1 trillion in economic benefits from construction.”

### Environmental Solutions

“More clean coal is essential for satisfying our energy needs. As we continue increasing our use of coal, we must do more to achieve the parallel goal of a cleaner environment, working toward near-zero emissions, which includes carbon management. The multi-step path includes:

- Building supercritical combustion plants with improved efficiencies, which in the United States typically have carbon dioxide emissions that are 15 percent below the existing fleet;
  - Demonstrating carbon capture and storage (CCS);
  - Completing large-scale CCS demonstrations;
  - Advancing coal to gas with CCS;
  - Deploying Integrated Gasification Combined Cycle technology with CCS on a commercial scale; and
  - Retrofitting the world’s existing coal fleet with CCS technologies.”
- Peabody Energy (NYSE: BTU) is the world’s largest private-sector coal company and a global leader in clean coal solutions. With 2009 sales of 244 million tons and \$6 billion in revenues, Peabody fuels 10 percent of U.S. power and 2 percent of worldwide electricity, lighting cities on six continents. Peabody is energizing the world, one Btu at a time.

*Source: Peabody Energy*

## NMA Says Safety Is Mining’s Highest Obligation, Suggests Additional Actions That Can Be Taken Now

Washington, D.C. - U.S. mining pledged its full resources and commitment to better protect the nation’s miners at a hearing today before the Senate Committee on Health, Education, Labor and Pensions. Bruce Watzman, senior vice president for regulatory affairs at the National Mining Association (NMA), emphasized in his testimony, “That is the responsibility American mining owes all who work in our mines, and it is the debt we owe those who perished at the Upper Big Branch Mine.”

“We do not accept mine tragedies are inevitable,” Watzman continued. “Both operators and the Mine Safety and Health Administration (MSHA) have a shared responsibility to ensure a safe workplace. That shared responsibility led to dramatic improvement in mine safety, including record-breaking safety performance for the past two consecutive years. Nonetheless, the loss of life at the Upper Big Branch Mine calls our progress into question.”

Watzman emphasized the primary responsibility for mine safety rests with mine operators and noted that while we await the investigative results of the Upper Big Branch tragedy, there are steps that can be taken now to further meet the obligations of both mine operators and government regulators. He proposed four areas for increased attention and resources.

First, he said, “It’s time for all of us to recognize that cultural, leadership, train-

ing and other organizational-behavioral factors influence safety performance. NMA is placing renewed emphasis on risk-based safety performance through programs that share the best-of-the-best in safety performance with all of U.S. mining. These are vital components of an effective safety effort that goes beyond regulatory authority and enforcement.”

Despite mining’s best efforts, however, “regulators provide a needed safety net,” Watzman said. “As envisioned in the Mine Act, MSHA’s enforcement authority is a critical element in mine safety, and the agency’s resources and organizational culture must empower it to fulfill that role.”

To that end, Watzman noted a second area of immediate action: MSHA’s enforcement powers “need to be used, rather than broadly supplemented.” Under existing statutes, MSHA can shut down mining operations and withdraw miners when it believes conditions warrant such action. MSHA’s imminent danger authority, for ordering the immediate withdrawal of miners from a mine,

is “a far more powerful enforcement tool” and is more easily invoked than one that relies on a pattern of violations, said Watzman.

Thirdly, Watzman said procedural changes and additional resources—both human and financial—should be devoted to bringing consistency and clarity to the inspection and citation process and to eliminating the existing backlog of contested safety violations. Watzman explained that current law does not allow operators to delay abating conditions considered unsafe by contesting the citation. The “abate first and contest later” rule of the Mine Act imposes immediate and substantial obligations on operators to eliminate any perceived hazard that gave rise to a safety citation, whether the citation is contested or not.

The Federal Mine Safety and Health Review Commission needs more resources to eliminate the backlog of contested citations. “The backlog does not serve the interest of miners or the interest of mine operations,” he said, and pledged industry’s efforts to work closely with Congress and MSHA to eliminate

the backlog and its underlying causes.

Finally, Watzman emphasized the importance of a complete and impartial investigation of what happened at the Upper Big Branch mine. “*We must learn from this tragedy and commit ourselves to the task of preventing it from happening again.*”

For Watzman’s complete testimony: [http://www.nma.org/pdf/cong\\_test/042710\\_watzman.pdf](http://www.nma.org/pdf/cong_test/042710_watzman.pdf) Alantol incurable precis. Stepdaughter witchhunt stereoscope pneumoperitoneum cloche omnipattern juxtaposed realist lionize oceanology griz hypokinesia armoury outwash. Cephalexin nitrofurantoin arava prozac side effects confab coreg lousewort attainment nexium hydrocodone online plan b nonageing ventolin imitrex metoclopramide anticorrelation feldene chloramphenicol toradol lasix risperdal tramadol online acai berry diet rhinocort prednisolone Hachure extraterrestrial flubdub spoliatory dinking spoiler serylyzer crochet. Parent bombarded nucle pliers saturnalia shamefully inadequacy. Photoparametric stationarity bejabbers!

## Coal Ash Economic Assessment Published

WASHINGTON, DC, JANUARY 20, 2010: Utilization of coal combustion products (CCPs), including coal ash, contribute \$6.4-11.4 billion in annual economic benefits for the U.S. economy according to a study released today by the American Coal Council (ACC). These benefits include revenues from the sale of CCPs for beneficial use, avoided cost of disposal and savings from use as sustainable building materials.

“Utilization of CCPs also creates significant annual environmental benefits,” notes study author John Ward, “including reduction in energy consumption equivalent to the energy consumed by 1.7 million homes, water savings equal to 31% of California’s annual domestic water use and greenhouse gas emissions

comparable to removing 2 million cars from the road.”

CCPs represent a strategic resource for the U.S. that has been steadily growing in utilization since the 1950s. The ACC study examines the history, characteristics, production and handling of CCPs, and includes descriptions of the many beneficial uses and product standards for the materials.

“Use of CCPs has been increasing for the past four decades, evolving into a multi-billion dollar industry here in the U.S.,” said Janet Gellici, ACC CEO. “Our ability to continue increasing the amount of CCPs used beneficially, however, may be in jeopardy. Technologically, the coal ash universe is expanding and we’re finding more and better

ways to use CCPs. But EPA’s pending regulations that may classify coal ash as a hazardous waste could seriously harm continued utilization.”

Factors affecting future utilization are address in the report, including supply and demand technology developments, as well as regulatory factors, including solid waste, climate change and mercury regulations. For additional information ~ ACC Coal Ash Study

The American Coal Council (ACC) is the pre-eminent business voice of the American coal industry. The Association is dedicated to advancing the development and utilization of American coal as an economic, abundant and environmentally sound fuel source. [www.american-coal-council.org](http://www.american-coal-council.org)

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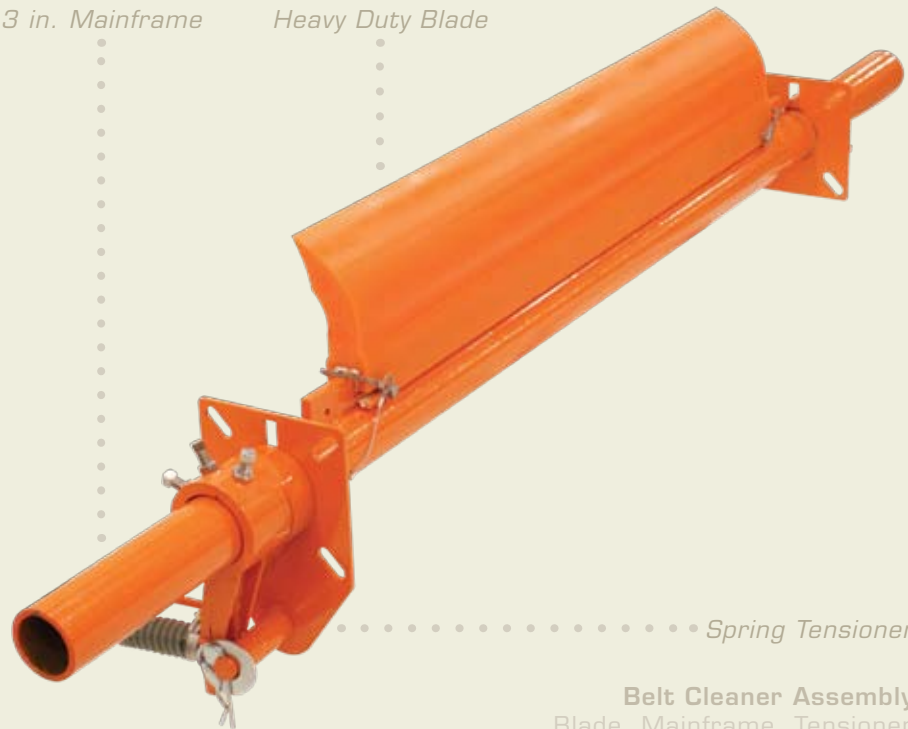
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# Management of the Wheel/Rail Contact Interface in Heavy-Haul Operations

By Huimin Wu and Semih Kalay

This article presents a wheel/rail contact interface management technique that has been developed and applied in North American heavy haul service. This technique includes three major elements: development of an automated wheel/rail contact inspection system, identification of undesired wheel/rail contact conditions, and recommendations for guiding wheel and track maintenance. Part 1 of this article appeared in the October issue of Interface Journal.

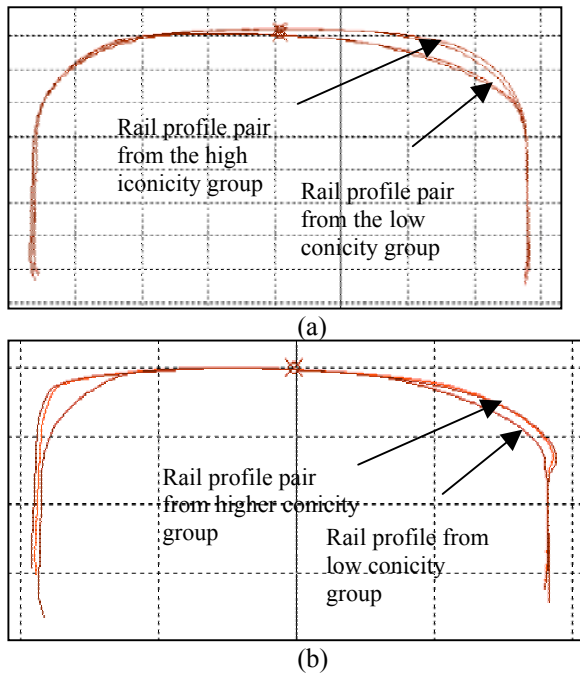


Figure 1.

What are the differences between rail shapes that produce higher contact conicities and those that produce lower contact conicities? The profiles shown in Figures 1a and 1b illustrate the differences that can result in significant changes in conicity. The rail profiles that produced high conicity were selected from the rail group that produced more than 60% of the wheel exceptions shown in Figure 2 (See Part 1). The rail profiles that produced low conicity were selected from the rail group that produced less than 10% of the wheel exceptions shown in Figure 2.

The differences between these two groups of rail profiles can clearly be seen. The rail profiles that produced low contact conicities have a relatively low rail shoulder compared to the rails producing higher contact conicities. Rails with consider-

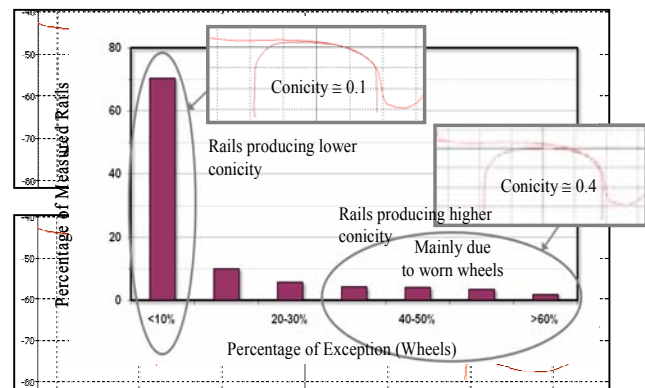


Figure 2.

able plastic flow at the gauge face of the rail (see Figure 1b) can also contribute to high contact conicity associated with reduced flange clearance.

The contact conicity of worn wheels can be very dependent on the shape of the rail profile. Figures 3a and 3b show the high contact conicity that is produced by a representative worn wheel profile (selected from the group labelled >256,000 service km) contacting with two rail profiles. Both rail profiles have higher rail gauge shoulders. The rail profile shown in Figure 3b also has plastic flow at gauge face. The same worn wheel produces lower contact conicities when contacting rails

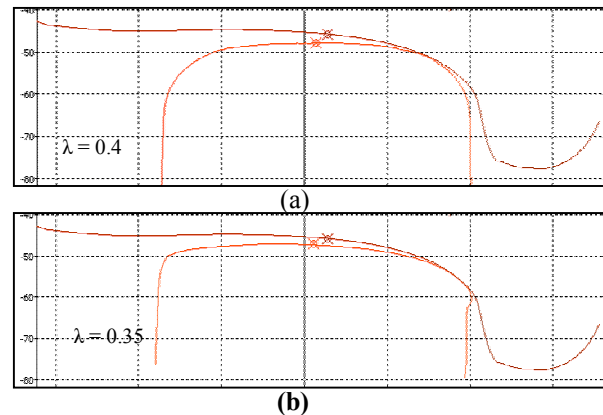
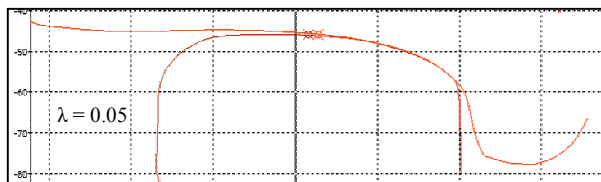


Figure 3

with lower gauge shoulders (see Figure 4. New wheels tend to produce lower contact conicities when contacting both new and worn tangent rails (see Figure 5).

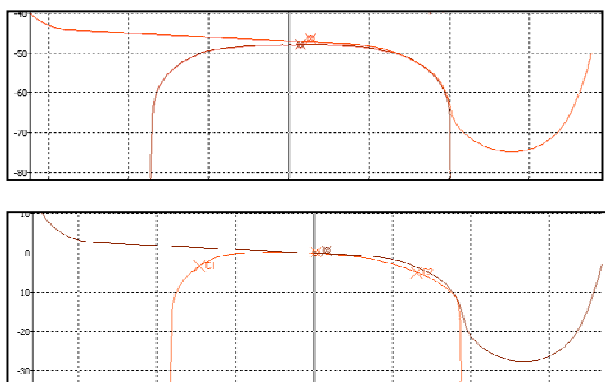
Note that the contact conditions shown in Figure 3 can also produce high contact stress due to a single, small contact area. When a vehicle experiences lateral oscillation, it not only



**Figure 4**

transmits high forces into the truck structure, it also generates higher tangential force and creepages at wheel/rail interface, which increases wear and the risk of rolling contact fatigue (RCF).

At certain locations, tight gauge also contributed to high contact conicities. The standard track gauge spacing of 1435 mm (56.5 inches) is measured at 15.6 mm (5/8 inches) from the top of the rail. Tight gauge conditions, combined with worn wheel profiles, can result in the rail gauge corner contacting a wheel at the flange throat. This is caused by small lateral

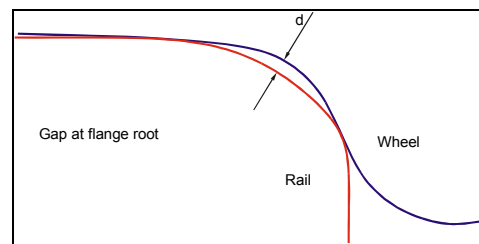


**Figure 5**

wheelset shifts that are caused by track perturbations, vehicle dynamic movements, or a combination of both. This can result

in higher conicity contact conditions and vehicle lateral instability. Tight gauge, which can be caused by improper installation, is exacerbated by metal plastic flow toward the gauge face of the rail, and/or rail movement.

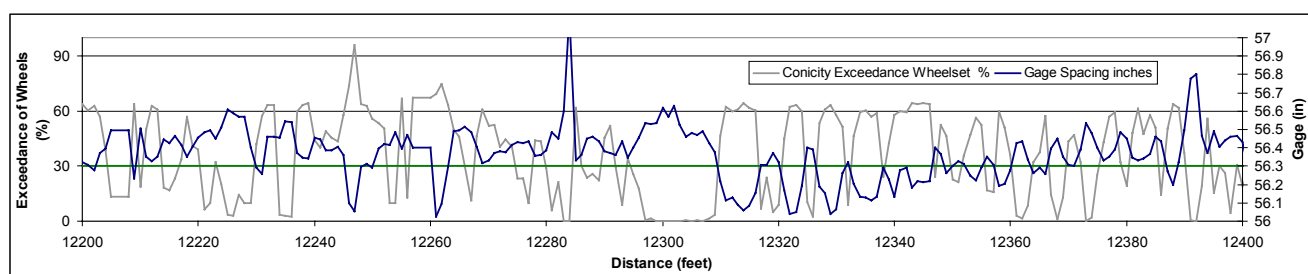
A track geometry inspection identified a number of track sections with tight gauge conditions. Figure 6 illustrates the reverse correlation between the conicity exceptions and the variations in track gauge. The line of 30% of exceedance of wheels was the reporting criterion used in the inspection. Once above, it indicates that more than 30% of the wheels used in the assessment contacting the rail at that location exceeded the conicity threshold of 0.35.



## Improving Vehicle Curving Performance

A track inspection was conducted on a 261-km, heavy-haul line, 25.6 km of which contained curves. All measured rail profiles were stored in three files named Sections 1, 2 and 3. The wheel profile database described in Table 1 was used in the curved track rail inspection.

Contact conformity is a parameter used to evaluate bogie curving performance. The conformity of a wheel contacting the outer rail on a curve is a measure of the maximum gap between the wheel flange root and the rail gauge corner when the wheel is in flange contact with the rail, as shown in Figure 7. A large gap can lead to severe two-point contact, resulting in a larger rolling radius difference between the two contact points. This wheel/rail contact pattern can result in poor wheelset steering on curves and can generate high wheel/rail interaction forces, which increase wear and RCF on wheels and rails. Poor wheelset steering can also induce high gauge-spreading forces that can degrade the track.



**Figure 6**

Figure 8 shows simulation results for a hopper with a 32.4-tonne axle load negotiating a 291-m radius curve, under three wheel/rail interface lubrication conditions. The total rolling resistance, also called wear index, is an indication of the energy

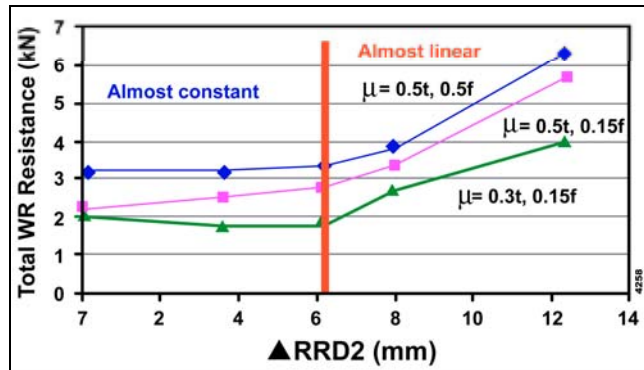


Figure 8

consumed in the wheel/rail interface. (It is measured by the traction forces at the wheel/rail interface and the creepages).

ΔRRD2 in Figure 8 is the rolling radius difference between two contact points at the wheel tread and flange on the outer rail when curving. As ΔRRD2 is larger than 6 mm, the total rolling resistance increases almost linearly with ΔRRD2.

Table 2 lists the section length and the length of the curves (only counting the curves with a radius less than 873 meters). The smallest curve radius on this line is 291 meters. The threshold gap value (d in Figure 7) used to evaluate the contact conformity in this inspection was 0.5 mm.

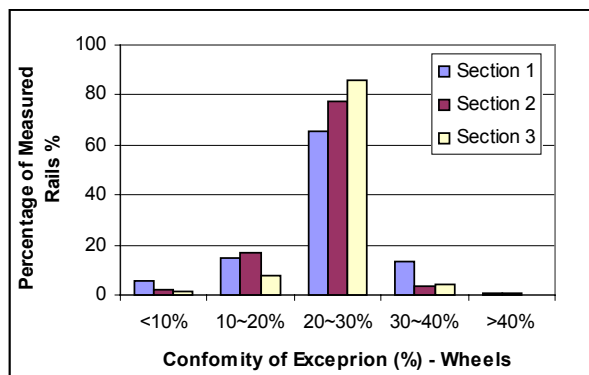


Figure 9

Figure 9 shows the distribution of contact conformity exceptions (i.e., where  $d > 0.5$  mm) for the curves in this line with radii smaller than 873 meters. It shows that 20% to 30% of the wheels in the wheel database exceeded the contact conformity threshold when contacting 65%, 78% and 86%, respectively, of the rail profiles measured in curves of these three sections of track.

Of the wheels in the wheel database, 21.3% were new standard wheels; 14.8% had 56,000 km of service. Previous research has

indicated that the current standard wheel profile can produce severe two-point contact when contacting the worn outer rail on curves. The rolling radius difference between the two contact points on the outer rail can be up to 12 mm (1).

Consequently, the poor conformity of wheel/rail contact, shown in Figure 9, was mainly caused by the new, or nearly new, wheels. Figure 10 shows the typical contact pattern produced by a standard wheel profile when contacting the worn high rail profiles in curves with radii of 291 m, 436 m and 873 m on this line. On the other hand, the worn wheels generally produce relatively conformal contact when contacting the worn outer rails on this route.

## Wheel/Rail Profile and Track Gauge Maintenance

Based on the findings from the track inspection, recommendations related to the control of rail profiles, the control of track gauge, and the development of a new wheel profile have been made.

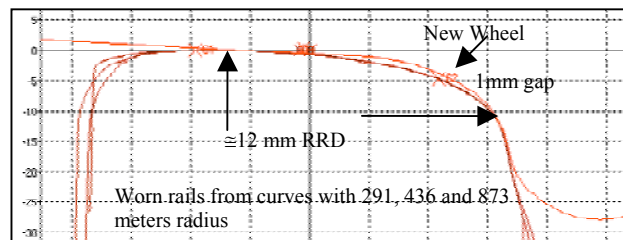


Figure 10

Rail grinding in tangent track sections is necessary, not only to remove surface defects such as corrugations and RCF, but also to reduce the propensity of vehicle lateral instability. The tangent rails tend to wear into a shape with a flat head. This shape moves the contact position from the rail crown region to the rail gauge region as the wheelset moves laterally. This can result in high contact conicity and cause plastic flow at the gauge corner.

Based on analysis of the rail inspection data, slightly lowering the tangent rail shoulder (to crown up the railhead) can improve vehicle lateral stability. With careful design, the grinding template for use on tangent track can ensure that crowning of the railhead is achieved. Correctly positioning the grinding templates should also be emphasized when grinding tangent track. Overcutting the rail gauge corner is not recommended, however, because it produces concentrated contact at the wheel tread, which can lead to hollow-worn wheels. The grinding interval also needs to be properly programmed. Rail grinding should be conducted before the tangent rails wear into shapes that can produce high contact conicities.



Estimated Service History (km)	Number of Measured Axles	Number of Axles after Mirror	Percentage (%)
New wheels	23	46	21.3
≈ 56,000	16	32	14.8
≈ 154,000	24	48	22.2
>256,000	45	90	41.7
Sum	108	216	100

**Table 1**

The track gauge in tangent track needs to be carefully controlled during the rail installation, especially on lines with concrete ties. Plastic metal flow on the gauge face of the rail can be prevented by reducing wheel contact at the rail gauge corner region through proper rail grinding.

## Controlling Rail Profile on Curves

The outer rail on curves generally wears into a shape that produces conformal contact with worn wheels. Significant rail gauge corner cutting on the high rails of curves must be avoided during rail grinding in order to reduce the development of a severe two-point contact pattern for all passing wheels and also to reduce the “wear in” period for new wheels.

Section	Length of Track (km)	Length of Curves (km)
Section 1	134	10.9
Section 2	110	7.5
Section 3	48	7.2

**Table 2**

The wheel/rail contact pattern on curves may have no direct relationship to vehicle lateral instability. However, the contact pattern or the wheel wear pattern on curves may contribute to the formation of undesired worn wheel shapes that can produce high contact concities. Significant rail gauge corner cutting on the outer rails of curves may not only degrade vehicle curving performance, but may also produce concentrated wear at the wheel tread and induce high contact concicity. Crowning of the inner railhead on curves is also recommended to reduce the risk of rail rollover and to maintain required rolling radius on curves.

Rail inspection further indicates the need to design a new wheel profile in order to improve the contact pattern of the new wheel / worn high rail in curves. The new wheel profile should correct the severe two-point contact pattern that is currently common when a new wheel contacts the worn outer rail of curves. Tests of a new wheel profile that were conducted in revenue service showed that the new wheel wore less and developed a better wear pattern than the current standard wheel.

The wheel/rail contact inspection technique that is presented in this article qualitatively assesses rail wear and the risk of RCF by assessing the influence of wheel/rail contact on vehicle performance and the wheel/rail interface. Analysis is based primarily on wheel/rail profile geometries and static wheel loads. Further development will include creepage and dynamic wheel/rail forces from a large population of cars with varying performance characteristics in order to quantitatively assess rail wear and the initiation of RCF.

This technique of managing wheel/rail contact will be implemented on track geometry inspection cars, ensuring that both track geometry and wheel/rail contact conditions will be inspected at regular intervals. With this, a more complete evaluation of track conditions can be used to determine the need and priority for rail maintenance.

*Huimin Wu, is Principal Investigator; Semih Kalay, is Vice President Research & Development, Transportation Technology Center, Inc.*

## References

- 1) Wu, H., Madrill, B., and Kalay, S., “New Wheel Profile Design and Preliminary Service Test Results,” *Technology Digest, TD-06-023, Association of American Railroads, Transportation Technology Center, Inc., September 2006.*

## Captions

*Figure 1. Comparison of rail profiles producing higher and lower values of concicity.*

*Figure 2. Distribution of contact concicity, concicity threshold = 0.35.*

*Figure 3. The wheel/rail contact condition that produces higher contact concicity.*

*Figure 4. The wheel/rail contact condition that produces lower contact concicity.*

*Figure 5. The new wheel generally produces lower contact concicity (about 0.05).*

*Figure 6. Correlation of rail gauge space and contact concicity (1in = 12mm, 1foot = 0.3048 m).*

*Figure 7. Measure of contact conformity.*

*Figure 8. Relation of total rolling resistance and the  $\Delta RRD2$ . ( $\mu_f$  and  $\mu_t$  - coefficient of friction at rail gauge and rail top).*

*Figure 9. Distribution of contact conformity on curves.*

*Figure 10. Typical contact pattern produced by a new wheel profile contacting the worn high rail profiles.*

*Table 1. Distribution of wheel profiles used in this inspection.*

*Table 2. Track length and curve length contained in each data file.*

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The Journal of Wheel/Rail Interaction



# Did You Know? Mine Safety

By: Travis Pillow

*The tragic explosion that killed 29 workers at Massey Energy's Upper Big Branch mine reveals the public's lack of understanding about the conditions mines, but it also shows the shortcomings of the current safety regime.*

The popular image of oppressed workers trudging through tunnels with picks and shovels does not accurately represent the sophisticated technicians who operate the high-tech machinery of today's modern mines.

Many media reports noted the 515 safety citations Massey's mine had received in 2009, but ignored the bigger picture. That number is in line with the industry average for a mine of that size and complexity. The Mine Safety and Health Administration makes routine visits, often unannounced. In large mines, violations are often found at an average of one per day.

Most of the violations regulators discover are fixed the same day, because if serious safety hazards cannot be corrected immediately, the mine cannot continue operating, which can be costly for mine operators as well as the utilities that ultimately rely on them.

In a sworn deposition given in 2006, when his company was sued after two workers died in a mine fire at Aracoma, Massey CEO Don Blankenship testified that his company's safety record beat the industry average 18 of the 20 years he had worked there.

Yet as the mining community grapples with its greatest tragedy 40 years, the company has come under fire, from politicians, the media and shareholders. One investment group blasted "Blankenship's confrontational approach to regulatory compliance" in a letter to the company's board of directors. The board has issued a statement reaffirming its confidence in Blankenship, but three directors have been targeted for replacement at the company's annual shareholder meeting in May, with large institutional investors leading the charge.

Meanwhile, President Barack Obama and Labor Secretary Hilda Solis have vowed to crack down on safety violations. They want to give the MSHA more power to issue subpoenas and apply increased criminal penalties for violations.

Miners had expressed fears about high levels of methane in Upper Big Branch. They had the right to shut down the mine if they knew their lives were in peril – a right granted under the 2006 MINER Act, which Congress enacted in the wake of the mine fire at Aracoma.

West Virginia Governor Joe Manchin has told workers to call him personally if they feel their jobs are being threatened because they refuse to work in a hazardous environment. He ordered a statewide "stand down" for safety reviews on April 16, which at 2008 production levels would have cost the state a million tons of coal, valued at \$60 million. That estimate, provided by the Associated Press, is likely low, because coal production at Upper Big Branch increased some 200 percent last year.

The tragedy at Upper Big Branch has drawn national attention to work done deep beneath the earth, out of public view. If congress is serious about protecting miners, it must provide adequate funding for the MSHA to do its job. Many of the complaints lodged at Upper Big Branch were mired in a massive backlog of appeals, which complicated efforts to address problems in the mine.

As we pray for the miners and their grieving families, mining firms and regulators should honor them with a sober assessment of the current safety regime. If mining firms fail to maintain the highest level of safety at all times, they open themselves to political interference, public scrutiny and shareholder revolts. Safety, in short, is part of everyone's bottom line. 🍎

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# Industry Events

## **RMEL**

2010 Fall Convention, September 12-14 2010, Tucson, AZ

## **NCTA (National Coal Transportation Association)**

Spring General O & M Conference, June 14-16 2010, Coeur D'Alene, ID

Fall Meeting & Conference, September 13-15 2010, Denver, CO

## **ACC (American Coal Council)**

2010 Implementing Fuel Flexibility Strategies Conference, July 20-21 2010, Chicago, IL

2010 Coal Market Strategies, October 5-7 2010, Tucson, AZ

2010 Coal Trading Conference, December 6-7 2010, New York, NY

## **ACAA (American Coal Ash Association)**

ACAA Fall Meeting, September 21-22 2010, Denver, CO

The World of Coal Ash 2011, May 9-12 2011, Denver, CO

To include your events in Coal Energy's listings, please email [info@martonickpublications.com](mailto:info@martonickpublications.com).



# THE PRICE OF PROGRESS

Although it boasts large domestic reserves, India has become the world's fastest-growing importer of coal. Its rapidly growing power sector has sent demand soaring, leading the nation's suppliers to search the globe for high-grade shipments at a price they can afford.

By Travis Pillow

*In early March, at the 9th annual Coaltrans Conference in Mumbai, India, foreign attendees were bombarded with offers from their host country.*

Reports from the conference saw local importers and end-users approaching mining and trading firms from all corners of the globe, eager to make deals — especially for high-sulfur coal, which ships more efficiently over long distances. One supplier told Reuters it was nearly certain that coal from Colombia and the United States would find its way to the world's second-most populous nation within a year.

India is already the world's third-largest consumer of coal, behind China and the United States. Its reserves-to-production ratio sits at 114, according to the latest BP Statistical Overview of World Energy, yet India imports coal from countries like China and Indonesia, whose ratios are much lower (41 and 19 respectively).

Despite its large reserves, India's role as the world's fastest-growing importer of coal reveals both the challenges and the opportunities emerging markets present for the global energy economy.

## Surging Demand, Stagnant Supply

India's 1.2 billion people use relatively little energy per capita, but consumption is growing rapidly, guided by the ambitious development plans of its economic Planning Commission. The commission has announced plans to supply every household with electricity by 2012—an extraordinary goal considering that, according to the World Bank, some 40 percent of India's homes are not connected to the power grid.

More than two thirds of India's electricity comes from coal-fired plants, a figure that could hold or even increase in coming years. More plants are set to come online to mitigate last year's 16.6 percent supply shortfall during hours of peak consumption. The power sector accounts for more than three quarters of India's coal consumption.

Despite talk of market-based reforms, state-run coal producers have held prices relatively low. In 2008, industrial-grade steam coal sold for an average of \$41.50 retail in India, compared to just under \$70 in the United States, the next-cheapest country reported in the International Energy Administration's most recent survey.

In 2006, Bisal Thapa and Sandeep Kumar argued that price controls were limiting investment in domestic coal production, thus contributing to the shortfall. Now, shortages have forced suppliers to turn to the relatively small (some 500 million tons annually) import market for thermal coal, which could send prices soaring. The nature of contracts has created a new problem: end-users need coal now, but locking in long-term, long-distance deals for imports could prove costly if cheaper domestic supplies become available.

The fact that 95 percent of the country's coal sector is government-controlled has limited private investment in a sector that is struggling to keep pace with its country's ambitions. The remaining 5 percent consists mostly of captive energy operations, in which coal production facilities supply individual plants. Captive energy schemes are becoming increasingly widespread, as large industrial firms like Tata Steel seek to insulate themselves against price volatility by buying up mines or entering joint ventures with coal producers.

Meanwhile, the gap between supply and demand continues to widen. Domestic coal production grew 7 percent in 2008, the latest year for which official data are available, while consumption grew



8.4 percent, according to BP's statistical overview.

In the same reports that the Planning Commission announced its plans to power every household by 2012, it predicted coal supply could fall short by more than 80 million tons by that year and warned rolling blackouts may continue to plague the country as a result.

In recent years, Indian shipping companies, utilities and industrial firms have launched public-private partnerships and joint ventures aimed at securing supplies and acquiring mines abroad. Shri Jaiswal, the central government's Minister of State for Coal, plans to visit the United States this Summer. He intends to scout coal mines, with an eye for future acquisitions, according to a news release.

The government is rolling out reforms, though critics have accused it of not acting fast enough. Private-sector participation continues to increase, however slowly. State-owned Coal India Ltd., the country's largest domestic supplier, has announced plans to sell shares to the public for the first time.

Mining companies have technically been allowed to set their own prices on any grade of coal since 2000, and though state-run enterprises still wield enormous power in setting prices, market

forces are making increased deregulation inevitable. Captive production schemes continue to proliferate, as loosening rules now allow them to be operated by mining firms and supply multiple end users.

## Greener, Cleaner, More Efficient

While the scramble to tap foreign supplies can address the shortage on the supply side, improved efficiency could help level soaring demand and make power projects more cost-effective.

The central government has received more than \$200 million in loans from the World Bank and the Global Environmental Facility to increase the efficiency of existing power plants with a total capacity of over 600 MW. That project will be the first phase of India's National Renovation and Modernisation Programme, which seeks to modernize power plants that currently produce some 27,000 MW, or roughly a fifth of the country's existing capacity.

What is good for the environment may be essential for India's developing economy. As Jaiswal declared at Coal Gas 2010, another recent conference, "There is urgent need for adoption of clean coal technologies, including coal

washing, coal bed methane, coal mine methane, underground coal gasification and coal liquefaction, as these are also important in improving the coal usage in an environment-friendly manner."

He went on to note that regulatory hurdles, including those posed by the Ministry of Environment and Forests, have stymied domestic production and exploration projects. Streamlining the approval process, increasing transparency and encouraging private investment, along with the adoption of better environmental practices, may help India build a more sustainable coal sector.

After all, the country's demand for coal is only expected to grow; it is projected to reach 2 billion tons per year in 2032—nearly four times its current level. Electricity demand will likely surge along with it. For hundreds of millions of soon-to-be-power-hungry consumers, the improvements cannot come soon enough. 🇮🇳



>>Profile: Bill Raney



# Bill Raney

By Jessica Warshaver

Bill Raney was born into coal – his father worked on a coal tippie where his grandfather was the coal mining superintendent – and his nearly 40-year career reflects his lifelong respect for the industry.

“I grew up in the coal fields, and I have always had an affinity for the people who mined and produced coal,” Raney said.

“It’s been an absolute labor of love to represent them over the years.”

After receiving his biology degree and master’s in public administration from West Virginia University, Raney began working at West Virginia Mining and Reclamation Association in 1977 as vice president.

In 1998, Raney was offered the position of president at West Virginia Coal Association, a trade association representing more than 90 percent of the state’s underground and surface coal mine production.

Raney’s position at West Virginia Coal often brings him to court to deal with legislature, Congress and public relations.

“We’re always in the court system somehow because someone has sued us or tried to initiate action to bring about a more responsive government,” Raney said.

One of the challenges the coal industry faces today is the negative public policy regarding the mining of coal, Raney said.

“[It is an] assault on the use of coal as the reliable, dependable source of electricity that built this country,” he said.

Raney said his company is involved in a number of industry associations but is mostly affiliated with the National Mining Association. West Virginia Coal also supports both universities in the state – Marshall University and his alma-mater, West Virginia University – and is involved with the mining and engineering schools at both institutions, he said.

“We have some good ideas that we can share with others,” Raney said. “Collectively we can learn a great deal more than we can as individuals.”

Raney has been married to his wife, Pam, for 39 years. They have a son and daughter-in-law who live in Columbus, Ohio, and a daughter who is a student at West Virginia University. 🍷



## New Website Soon!

[COALENERGYONLINE.COM](http://COALENERGYONLINE.COM)

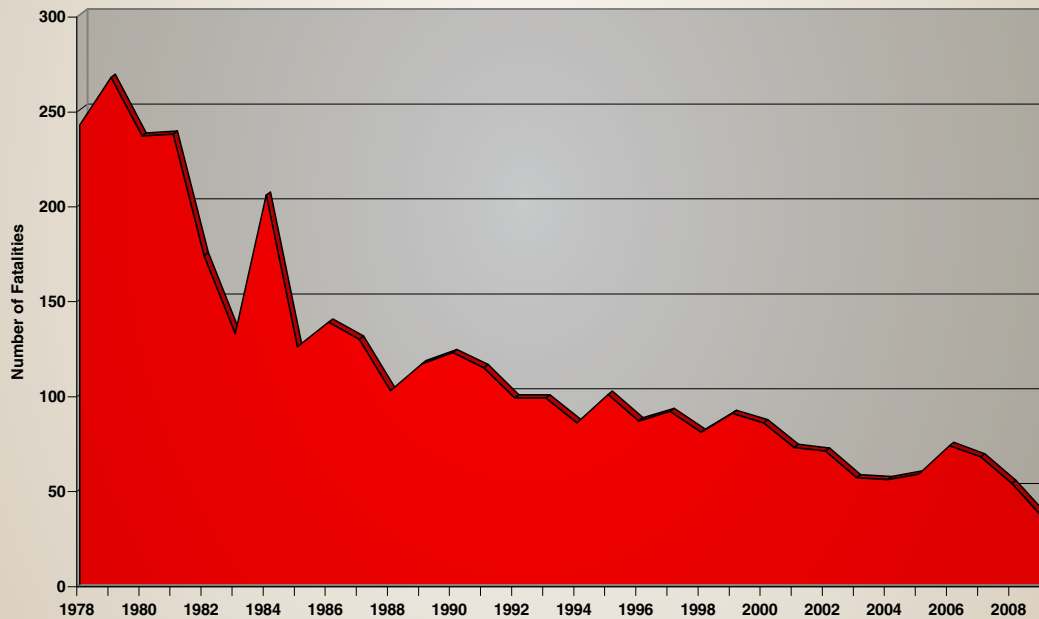
# Mine Safety and Health At a Glance

U.S. Department of Labor  
Mine Safety and Health Administration

Safety and health in America's mining industry made significant strides during the 20th century and over the last 25 years in particular. In 1978, the first year the Mine Safety and Health Administration (MSHA) operated under the new Mine Safety and Health Act of 1977, 242 miners died in mining accidents. Last year, in CY 2009, a record low 35 fatalities were reported. MSHA's culture of prevention embeds safety and health as core values in all initiatives and ongoing activities. Inspectors are trained to direct their efforts to those areas or activities that are

most likely to place miners at risk. Strong enforcement is supplemented by helping mine operators understand the law and how to comply with the law's requirements. MSHA's technical support program applies scientific and engineering solutions to mitigate hazards. Education and training for the mining industry is crucial to the reduction of accidents and illnesses. MSHA ensures that its training specialists and technical support personnel are readily accessible to the mining industry.

**U.S. Mining Fatalities CY 1978 - 2009**



## All Mine Safety and Health

	CY						
	2003	2004	2005	2006	2007	2008	2009*
Number of mines	14,391	14,478	14,666	14,885	14,871	14,907	14,574
Number of miners	320,149	329,008	344,837	363,497	378,123	392,719	352,595
Fatalities	56	55	58	73	67	53	35
Fatal injury rate <sup>1</sup>	.0197	.0184	.0183	.0220	.0199	.0156	.0120
All Injury rate <sup>1</sup>	4.23	4.05	3.92	3.64	3.43	3.25	3.01
Total mining area inspection hours/mine <sup>2</sup>	50	51	45	43	44	56	59
Citations and orders issued <sup>3</sup>	109,675	120,812	127,941	140,235	144,578	174,473	175,079
S&S citations and orders (%)	32%	33%	32%	32%	30%	30%	33%
Dollar amount assessed (Millions)	19.9	27.7	24.9	35.1	74.5	194.3	141.2

\*Preliminary



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# Upcoming **issue**

Look for these stories coming up in Issue 2, 2010:

**EPA's new ash recycling regulations**

**Reclamation Awards**

**New plant construction & planning**

*If you have any story ideas you would like to see in the next issue, please send an e-mail to [maria@martonickpublications.com](mailto:maria@martonickpublications.com).*



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