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of the

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# Coal Age

## FEATURE ARTICLES

- 30 Jim Walter Resources Installs New Overland Conveyor  
*Embarking on a major expansion plan, the company constructs a new overland conveyor to transport additional coal to a recently refurbished prep plant*
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- 21 Peabody advances clean coal research and advanced mining technologies
- 27 Arch Coal pledges to advance clean coal technology
- 27 RTEA purchases buses that provide significant improvements in safety and efficiency
- 28 Aracoma agrees to settle with widows in mine fire case
- 29 ASTM International Coal and Coke Committee approves new mechanical sampling standard

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South Africa pursues planned coal-to-liquids plant  
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Waratah Coal alternative infrastructure solution declared a significant project  
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## CONVEYOR TECHNOLOGY/30



## PRAIRIE STATE COMPLEX/46



## EXPLORATION DRILLING/38



# THIS ISSUE

*This month, Coal Age reports on the progress at the Prairie State complex in southern Illinois. Another field report describes how Jim Walter Resources (JWR) will handle the additional coal as it doubles the production level from the No. 7 mine in Alabama. On the cover, JWR's new \$20 million overland conveyor and the headframe for the new production shaft at the No. 7 mine.*

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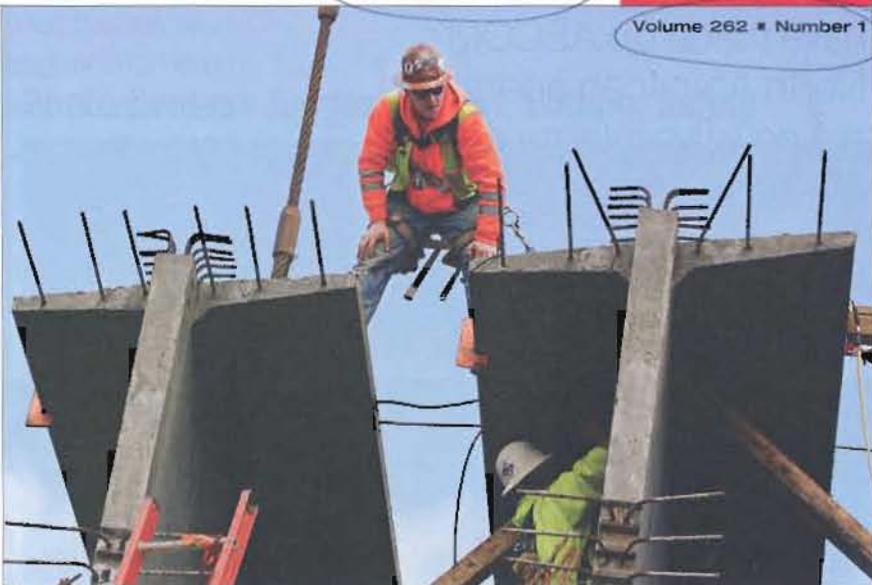
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COVER STORY

► Images of the Year

20 More than 800 photographs flowed into ENR's seventh annual "Images of the Year in Construction" photo contest, and our judges studied them all to select the top shots for this winners' gallery issue.



▲ PHOTOGRAPHER Tim Jewett, Portland, Ore. SUBMITTED BY Mark Bodyfelt, project manager, Stacy and Witbeck Inc., Alameda, Calif.

Jewett has been shooting light-rail projects in Portland, Ore., for a decade. He took this on the \$170-million I-205 LRT expansion for Stacy & Witbeck as girders were being set on a bridge. When that's happening, "I always try to go on-site because it's going to make for some pretty dramatic photographs," he says.

COVER PHOTOGRAPHER

Joseph A. Blum, People and Work Photography, San Francisco

Says Blum, who stood inside a cofferdam for the suspension span of the San Francisco-Oakland Bay Bridge: "The pilerdriver is using iron magnesium bars and compressed oxygen to cut loose the steel-grillage falsework."

NEWS

► Environment

- 12 Failure: TVA fly-ash spill raises questions on storage
- 15 Accidents: Accident on high-profile job draws forthright response
- 15 Infrastructure: Suburban Washington water mains found to be at risk



Fly-ash flood aftermath. Page 12

► Business & Economics

- 13 Settlements: State settles with Powers Fasteners
- 16 Investigations: Contractor safety managers indicted for Ground Zero fire
- 16 Obituary: Veteran ENR ad executive John Hernan dies

► Transportation

- 14 Research: Suspense and pressure mark six-month bridge-cable test

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COVER STORY

► Excellence

40 In recognition of those who serve the best interests of the construction industry, ENR editors have chosen 25 individuals for their innovations and achievements featured in ENR and ENR.com in 2008.

Cover by Joseph Caserto for ENR

THE TOP 25 NEWSMAKERS OF 2008

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16 Equipment: GM's hybrid Silverado truck sips fuel but lacks giddy-up

► Environment

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14 Cleanups: Art imitates remediation as first step in city cleanup
14 Flood Control: Next New Orleans storm-surge project aired
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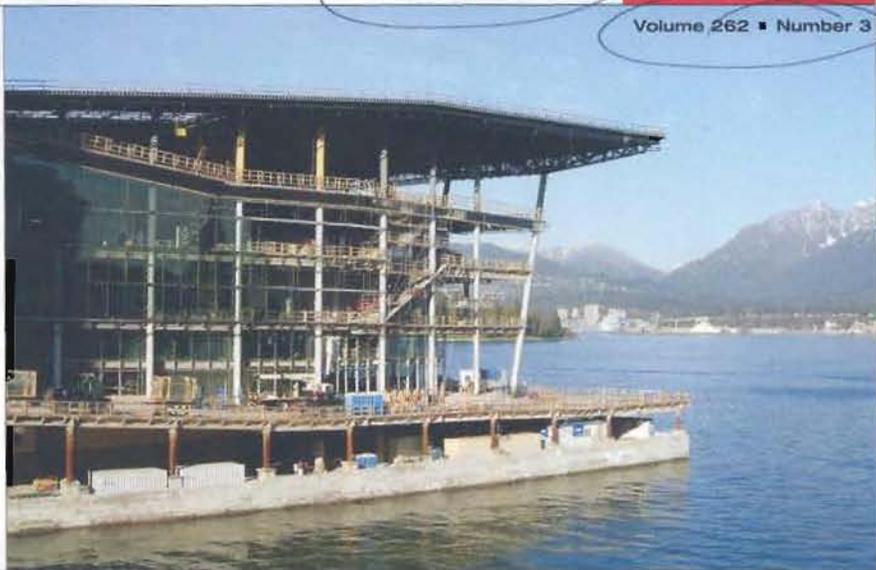
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**28** Vancouver convention center offers great views but is being built on a difficult harborside site that complicated design and construction.

Cover photo courtesy of VCCEP team; photo right courtesy of LMN Architects



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FEATURE

## AS GREEN AS IT GETS: ALGAE BIOFUELS

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"Algae fuel" doesn't conjure up images of power, big business or high-tech gadgetry; it suggests a modest picture of a murky pond covered by a greasy, greenish film. But algae may have the potential to become the ultimate in "green" fuel, powering everything from cars to jets and possibly solving the food versus fuel debate. The technology has come a long way in the last couple of years.

Carolyn Gramling



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FEATURE

## SICKNESS AFTER THE SURGE

The idea that disease outbreaks are an inevitable consequence of natural disasters has become dogma in the public health community. Although the surge of water that comes ashore with storms and tsunamis can dramatically affect human health, the greatest risks are rarely infectious diseases. Researchers are working to learn more about what actually happens after the storm surges subside.

Cassandra Willyard



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FEATURE

## PICK YOUR POISON: IF ONE POLLUTANT DOESN'T BRING DOWN THE EVERGLADES, ANOTHER MIGHT

Stretching nearly the width of southern Florida, the Everglades' varied ecosystems are home to everything from panthers to wading birds to the ubiquitous alligators. But human development has placed the national park in danger. Phosphorus, sulfur and other pollutants threaten the Everglades' waters and life.

William H. Orem



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TRENDS AND INNOVATIONS

## MINING FOR IRON OXIDES IN COAL MINE SLUDGE

The billions of tons of coal extracted from Pennsylvania over the past two centuries have long since gone up in smoke, but their legacy lives on in the state's rivers and waterways. Now a new technology implemented at a mine in southwestern Pennsylvania promises to become the world's first economically self-sustaining mine drainage treatment system, restoring streams while turning the collected metals into a commercial product.

Nicole Branam



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BENCHMARKS

## FEBRUARY 12, 1809: CHARLES ROBERT DARWIN IS BORN AND SO BEGAN MODERN BIOLOGY

As celebrations in honor of Charles Darwin's 200th birthday are in full swing, a revolution is rumbling through evolutionary biology. Over the last decade or so, scientists have learned that parents can pass on more than just their DNA sequence to their offspring, suggesting that there is much more to evolution than just random variation followed by selection of the fittest.

Nicole Branam

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BIOFUELS AND FOOD: MUTUALLY EXCLUSIVE?  
Major energy consumers are expanding their use of biofuels as one of the few sources of affordable and secure energy. Assuming this trend continues, biofuels will expand despite public concerns about the implied pressure on food prices and expansion of agriculture into sensitive areas like rainforests. Now it is just a question of how fast and in what ways the industry will grow.  
**Peter Hazell**
- 88 **GEOLOGIC COLUMN**  
CHECKING IN GREEN  
Green behavior in the lodging industry can go well beyond reusing towels or bed linens. At Zion Lodge in Utah, they use every trick in the book, from composting food waste to using energy-saving light bulbs to using solar and wind energy.  
**Fred Schwab**

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Everyone wants  
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John Conley,  
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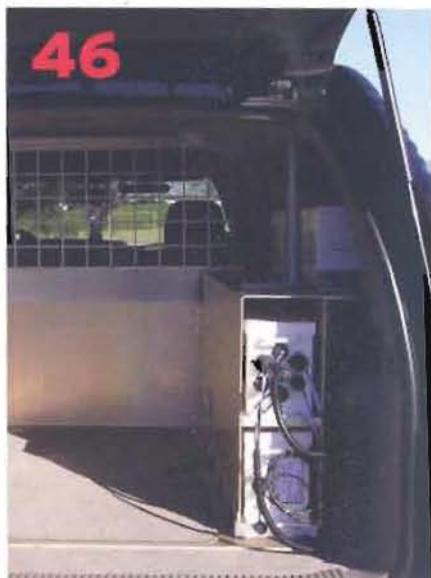
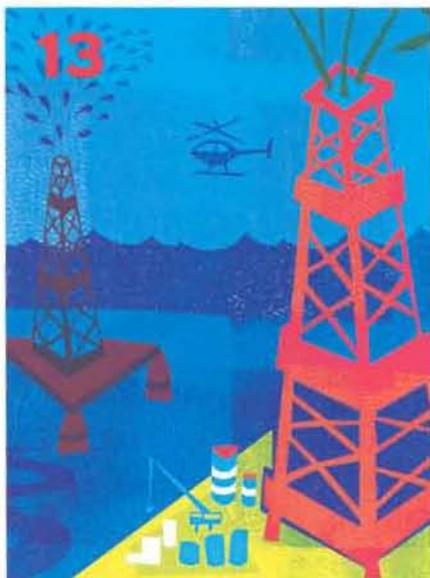
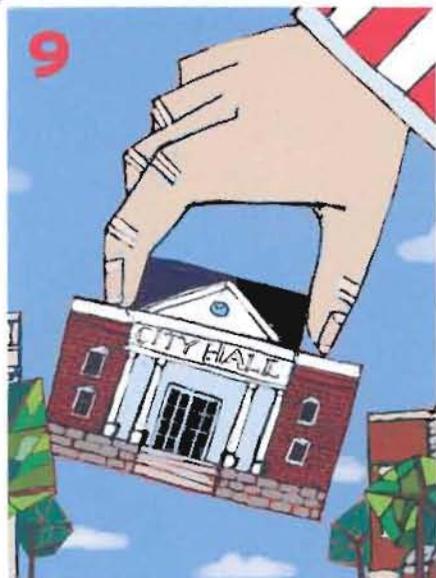
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Judith Totman Parrish

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**Erratum**

The photo of the Dallas skyline published on p. 23 of the October issue of *GSA Today* (v. 18, no. 10) should be credited to Melissa Fenton rather than the Dallas Convention and Visitors Bureau. *GSA Today* regrets this error.



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Special Issue

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## CO<sub>2</sub> Sequestration in Coals and Enhanced Coalbed Methane Recovery

edited by

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*On the Cover: Measuring rock fragmentation. See article on pages 8 and 34. Photo contributed by Tom Palangio*

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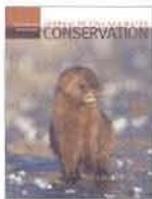
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(cont.)



**On the Cover**  
Water is the source of most of the mink's food supply. Photo by Stan Buman, Fenceline Photos.



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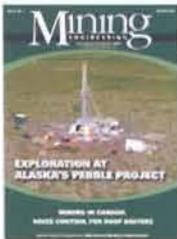
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VOL. 61, NO. 1 JANUARY 2009

## CANADIAN MINING

COVER STORY



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The Pebble Project consists of two world class copper and gold deposits. Located in a remote area of Alaska, the project faced some major opposition. However, Alaskan voters rejected a measure that would have stopped Pebble's development. An update on the project begins on page 38. Photo courtesy of the Pebble Partnership. Cover design by Nate Hurianek, ME's Production Designer.

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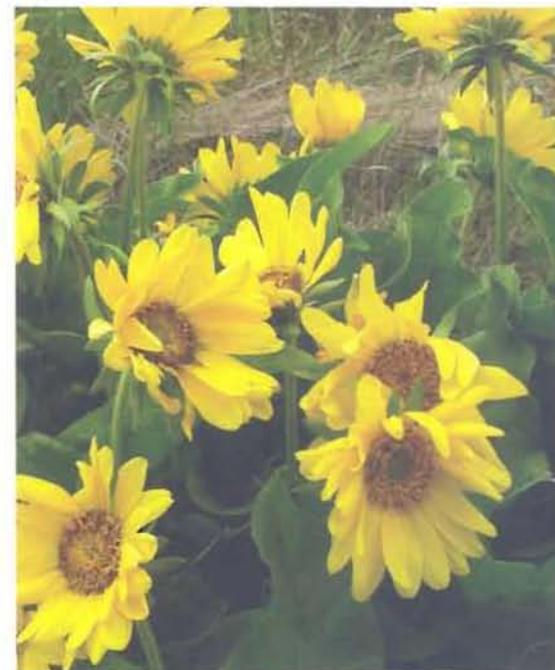
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(top) *Aquilegia formosa* Fisch. ex DC. (Ranunculaceae) by Lynda Boyer;  
(middle) *Iris tenax* Douglas ex Lindl. (Iridaceae) by Linda R McMahan;  
(bottom) *Balsamorhiza deltoidea* Nutt. (Asteraceae) by Thomas N. Kaye.

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# PAY DIRT

MAGAZINE

A Voice For Western Mining Since 1938

September 2008

**Cover Story:** Mt. Hope moly mine surging ahead **3**

**Mining in the West** **6**

Firstgold gets permit to start Relief Canyon • Nord gets air permit for Johnson Camp • Trial staping under way on two veins at Hollister • Barrick unit spends \$5.2 million on Pinson work • Mesquite doing well; plans for more output • High-grade tungsten ore hit at Golden Chest mine • Colorado Goldfields testing water cleanup technologies • Bireh Lake resources get boost in new report

**Energy** **13**

Uranera gets positive Nichols Ranch report • Cigar Lake remediation suspension is forced by flooding • New Mexico carbon dioxide sequestration program is a triple win • \$7 million Montana coal-to-liquids plant is announced

**Governments and Mining** **15**

U.S. court in Wyoming strikes roadless rule • Alaska voters defeat anti-mining measure • Senate committee OKs mercury export ban • Senate looks at bill on disclosure by mining companies

**Environment** **16**

Adanac, BC, Canada work on fish habitat • Industry objects to proposed sulfur dioxide limits • FWS unveils positive consultation changes • Teck Cominco donates to Arizona educational program

**The Business of Mining** **17**

Thompson Creek buying into Lucky Jack moly project • Xstrata's sulfuric acid prices increase from \$70 to \$120 • Shoshone to acquire Kimberly's gold assets • Xstrata Copper to invest \$121 million at Kidd • Petaquilla accepts Inmet's buyout offer

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## On the Cover

General Moly Inc. is continuing to move ahead on its Mt. Hope moly project in Nevada and expects to receive all required permits by mid-2009. It also has arranged another off-take agreement for its product, this one with Sojitz Corp., a leading Japanese trading company and the largest Japanese molybdenum trader. The illustrations on the cover show what Mt. Hope will look like after three years and 33 years of production.

## PAY DIRT

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# PAY DIRT

## MAGAZINE

*A Voice For Western Mining Since 1938*

### October 2008

**Cover Story:** Mining still vital to Arizona economy **3**

**Mining in the West** **6**

Sterling suspends work at Sunshine, faces other problems • NovaGold starts gold output at Rock Creek • U.S. Silver's output continues to rise rapidly • AMC says its plan better than Asarco's • Bankruptcy court okays plans for creditors' vote • Judge calls transfer of Southern Peru a fraud • Nord on track to start new mining in early 2009 • General Moly moves on financing Mt. Hope • Enviro sue to stop Simplot mine expansion • State says cleanup at Chino is complete • Additional high-grade intercepts made at Hollister

**Energy** **13**

Energy Fuels gets BLM okay to move on Whirlwind mine • Uranium One plans in-situ project in Wyoming • IRC acquires royalty on Skyline coal mine • Pentagon unveils new CTL tech program • New sculpture honors 9 who died at Crandall

**Governments and Mining** **15**

Baucus, Grassley bill pushes coal, CTL • MINEexpo podcasts are online for first time in show's history • New USGS mine and plant production data released

**Environment** **16**

Coal, mineral companies get awards for environmental work • U.S. Treasury creates energy, environment office

**The Business of Mining** **17**

MINEexpo, with record turnout, showcases industry • Teck creates 5 business units, simplified name and brand • Teck named to Dow Jones Sustainability Index in North America for first time

Commentary, 2; Ad Index, 6; The Americas, 9; Western Briefs, 12; Miners in the News, 20; Directory, 22; Safety, Health & Labor, 23; Low Grade, 24

### On the Cover

Dr. Madan M. Singh, director of the Arizona Department of Mines and Mineral Resources, argues in our cover story that even in an age of high technology, basic mining still plays a vital role in Arizona's economy. He further argues that much of what is attributed to other economic sectors, such as tourism, actually stems from the state's mining or mining heritage. The cover photo, for example, shows the Smithsonian-designed exhibit at the Bisbee Mining & Historical Museum, showcasing the community's mining heritage, but aimed at attracting tourism.

## PAY DIRT Magazine

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Front Cover Photograph: An ecotone between shrubland and grassland states due to varying resilience across a subtle soil boundary at the Corralitos Ranch, southern New Mexico, USA. Photo by Brandon Bestelmeyer.

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**Front Cover:** Grand champion photo, Texas Section Photo Contest: a white-tailed deer, seen at Terry & Gayle Smith's Ranch, north of Goldthwaite in Mills County, Texas. Photo by Forest S. Smith. Other winning entries appear on page 38.

Cover: A western harvest mouse, *Reithrodontomys megalotis*, outside an experimental enclosure in a California grassland. Using enclosures that control small-mammal access, Orrock et al. (pages 148-157) demonstrate that small-mammal consumers can hinder the restoration of the native perennial grass *Nassella pulchra* in grasslands that have become dominated by exotic annual grasses.

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An Interdisciplinary Approach to Soils Research

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## ERRATUM

It has come to our attention that an error occurred in Monograph No. 4 of the *Monographs of the Western North American Naturalist*. The error occurred in the article "Biogeography of aquatic and semiaquatic Heteroptera in the Grand Canyon Ecoregion, southwestern USA"

by Lawrence E. Stevens and John T. Polhemus. On page 41 of this article the author stated that the area of the Grand Canyon Ecoregion is "13,396 km<sup>2</sup>," but the correct area is 144,156 km<sup>2</sup>.

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