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American Society of Agronomy

Members of the American Society of Agronomy acknowledge that they are scientifically and professionally involved with the interdependence of natural, social, and technological systems. They are dedicated to the acquisition and dissemination of knowledge that advances the sciences and professions involving plants, soils, and their environment.

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6. As mentors of the next generation of scientific and professional leaders, strive to instill these ethical standards in students at all educational levels.

Approved by the ASA Board of Directors, 1 Nov. 1992

Coal Age

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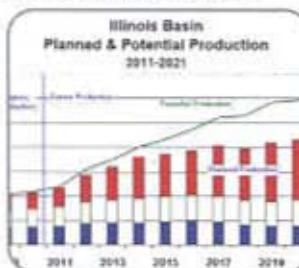
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THIS ISSUE

In addition to providing an in-depth report on the Illinois Basin, Coal Age this month covers the National Mine Rescue Contest, which took place in Columbus, Ohio, during October. The event was celebrating its 100th anniversary. On the cover, a mine rescue team member takes a gas reading during a problem-solving exercise.

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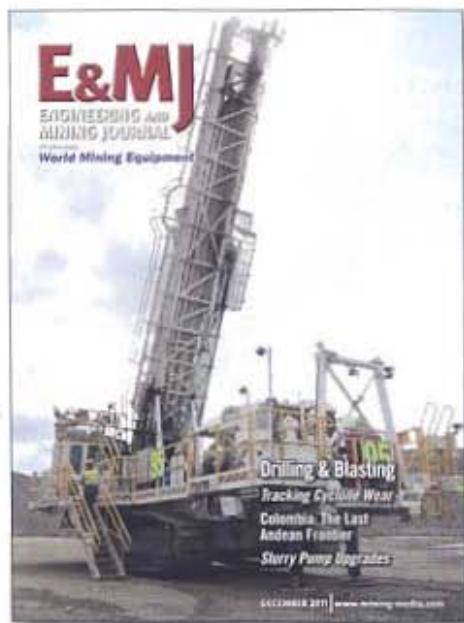
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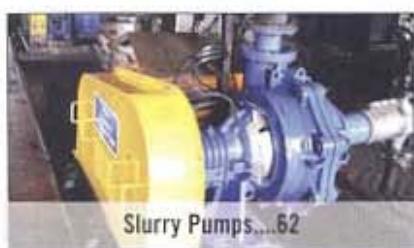
In addition to extensive reporting on mining activities in Colombia, this month E&MJ also covers the drilling and blasting techniques discussed at Sandvik's Mining Forum, which was held in Johannesburg, South Africa, during October. On the cover, an operator boards a DR460 at Anglo Coal's Drayton mine in Australia. (Photo courtesy of Sandvik)

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CHUCK SAMUELSONDULLES CORRIDOR
METRO RAIL PROJECT,
ANNANDALE, VA.

Samuelson, manager of special inspections for Jacobs Engineering, took this nighttime shot of construction for the \$2.6-billion, 23-mile extension of Northern Virginia's Metrorail to Dulles International Airport. "We worked around the clock, and I was on site to observe the segmental construction," he says.

**ON THE COVER**PHOTOGRAPHER:
RAY SEPESYWOODWARD BUILDING, BALLANTYNE
CORPORATE PARK, CHARLOTTE, N.C.Submitted by Lisa Geddings,
SteelFab, Charlotte, N.C.

Sepesy set up the early morning shot then waited for the workers to inch into his camera frame from the left side. As they lowered each beam into place, the crew then worked their way across to prepare another beam. After he got the shot, he stepped back just to watch.

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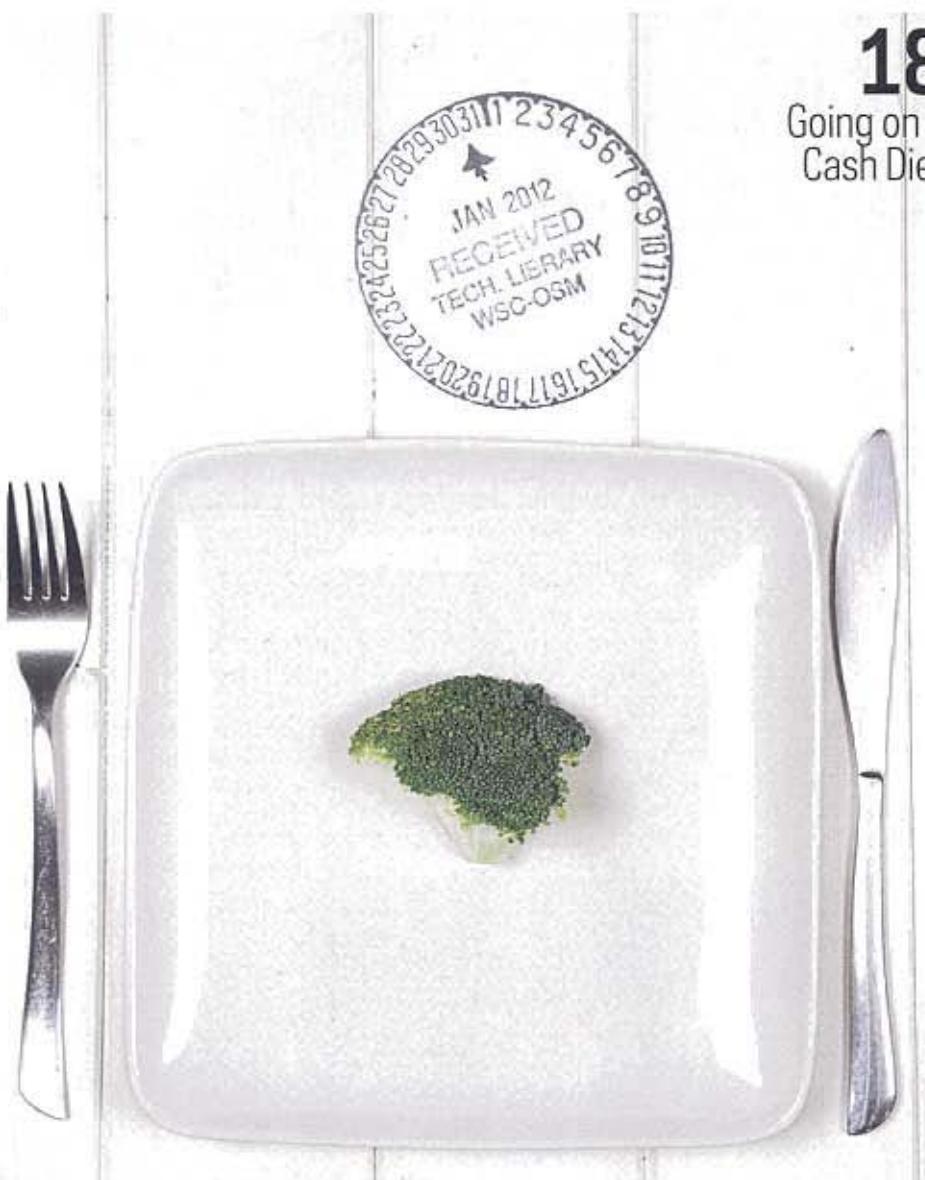
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*On the Cover: Mount Polley open pit gold mine in British Columbia.
See story, page 6.*



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Implementation of a corporate biodiversity management program
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New features for Caterpillar D9T ease operator's job, boost production

Plus much more! See it all at www.MiningEngineeringMagazine.com



Cover Photo

Rare earths have been a hot topic in the mining industry during the past few years. In the United States, they have been mostly associated with Molycorp's Mountain Pass Mine in California. However, James Barker and Bradley Van Gosen take a look at several deposits in Alaska, page 20. Cover photo shows airborne geological surveys being conducted by Ucore Rare Metals near the southern end of Prince of Wales Island in the southeast panhandle area of Alaska. Photo courtesy of James Barker.

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Cover. Most streams flowing in agricultural and urban areas suffer from the impact of excessive reactive inorganic nitrogen (Nr) inputs, typically under the form of ammonium and nitrate. These Nr species undergo geochemical transformations within the hyporheic zone, which is recognized as one of the major hotspots of denitrification where nitrous oxide, a potent green house gas, is produced. The figure shows nitrate distribution within the hyporheic zone of a small steep (bed slope of 1.32% and channel width of 1.3 m) stream with alternate bars morphology as predicted by the coupled biogeochemical and transport model developed by Marzadri et al. [2011WR010583]. Computations are performed by assuming in stream well mixed ammonium and nitrate concentrations. The main conclusion that can be drawn from the figure is that nitrification and denitrification occurring in different zones of the alluvium lead to a complex distribution of the nitrate concentration, which is chiefly controlled by the residence time distribution and the solutes within the alluvial sediments. This complex distribution of nitrate concentration within the hyporheic zone contrasts with the homogeneous well mixed in stream concentration and can be predicted from bed topography and other morphological characteristics of the fluvial reach. These physical and biogeochemical gradients have important consequences on water quality and the type and location of the hyporheic fauna. See Marzadri et al. [W11518].



W11527

Kelsey G. Jencso and Brian L. McGlynn

Hierarchical controls on runoff generation: Topographically driven hydrologic connectivity, geology, and vegetation (doi 10.1029/2011WR010666)

Corrections

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Daniel W. Meyer and Hamdi A. Tchelapi

Correction to "Particle-based transport model with Markovian velocity processes for tracer dispersion in highly heterogeneous porous media" (doi 10.1029/2011WR011483)

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