Volume 330 contains three sections of technical papers:

- **Section 1:** Includes all papers published in the Technical Papers Section of *Mining Engineering* in 2011, Vol. 63, including the January through April and June through December issues (no technical papers were published in the May issue). *Mining Engineering* papers are identified as “ME, Vol. 63” in the index.

- **Section 2:** Includes all papers published in the February, May, August and November 2011 issues of *Minerals & Metallurgical Processing*, Vol. 28, Nos. 1, 2, 3 and 4. *Minerals & Metallurgical Processing* papers are identified as “M&MP, Vol. 28” in the index.

- **Section 3:** This section includes papers published only in this volume. Transactions papers are identified as “Transactions SME, Vol. 330” in the index.

**CONTENTS**

**SECTION 1: MINING ENGINEERING MAGAZINE TECHNICAL PAPERS**

This section contains all papers published in *Mining Engineering* during 2011, Vol. 63

**JANUARY**

Early strength performance of modern weak rock mass shotcrete mixes
*C.C. Clark, M.A. Stepan, J.B. Seymour and L.A. Martin*

Current trends in reducing ground fall accidents in US coal mines
*C. Mark, D.M. Pappas and T.M. Barczak*

**FEBRUARY**

Simplifying ventilation network solutions in MEMC systems in US coal mines
*Yi Luo and Jianwei Cheng*

**MARCH**

Visual needs evaluation of continuous miner operators
*C. C. Jobes, J.R. Bartels, J.F. Ducarme and T.J. Lutz*

**APRIL**

Sales comparison valuation of development and operating stage mineral properties
*Trevor R. Ellis*

**JUNE**

Comparing tracer gas sampling methods in underground mines using solid-phase microextraction (SPME) fibers
*R. Patterson, K. Jackson, K. Luxbacher, H. McNair and R. Boggess*

Evaluating the use of booster fans in two underground coal mines
*J.M. Wempen, F. Calizaya, R.D. Peterson and M.G. Nelson*
JULY

Is the system of mine safety and health in the US broken?
  D. Lauriski and B. Yang 56

Modified tail section reduces noise on a continuous mining machine
  A.K. Smith, J.J. Zimmerman, R. Michael and P.G. Kovalchik 62

AUGUST

Life-of-mine schedule from multiple pits: case study for the Tenke Fungurume mining district
  R. Benito, G. Sanner and W. Cai 65

Impact of bucket fill factor on dragline production rate and energy consumption
  D. Bogunovic and V. Kecojevic 74

SEPTEMBER

Benchmarking longwall dust control technology and practices
  J.P. Rider and J. Colinet 80

Exploratory finite element analysis (FEA) and conceptual design findings of large-diameter, segmentally lined shaft
  D. Kruse, A. Basso, A. Le and T. Tan 87

OCTOBER

Assessing small underground coal mines for high safety-related risk
  H. Kinilakodi and R.L. Grayson 95

Silica dust at roof bolters
  F. N. Kissell 100

NOVEMBER

A deeper look at contractor injuries in underground coal mines
  D. Pappas and C. Mark 105

Supervision of multiple vehicles in autonomous surface mines through a control room
  V.O. Tenorio and S.D. Dessureault 112

DECEMBER

Refining automated modeling of operational data by identifying the most important input factors
  Siddhartha Agarwal and Rajive Ganguli 119

Reclaiming steep-slope coal mines in the eastern US for successful reforestation
  D. Kumar and R.J. Sweigard 122
SECTION 2: MINERALS AND METALLURGICAL PROCESSING
This section contains all papers published in M&MP during 2011, Vol. 28

FEBRUARY

Not another HPGR trade-off study!
P. Amelunxen and D. Meadows

Kaolinite micro flotation and electrokinetic properties
O.M.S. Rodrigues, A.C. Araujo and A.E.C. Peres

Real-time monitoring of arsenic, cadmium, copper and lead concentrations in workplace smelter particulates using a TSI 8520 DustTrak
J.P. McDonald, R.R. Larson, L.F. Pahler and M.S. Thiese

TECHNICAL NOTE: Beneficiation of high-ash, Indian non-coking coal by dry jiggling

Shrinking-core model for pig iron nugget production
B. Anameric and S.K. Kawatra

Sulfide capacity modeling of FeOx-MO-SiO2 (MO=CaO, MnOx, MgO) melts
B. Derin and O. Yücel, R.G. Reddy

Advances in cyanidation of silver
G. Deschênes, J. Rajala, A.R. Pratt, H. Guo, M. Fulton and S. Mortazavi

Optimizing conditions for wet grinding of synthetic rutile using response surface methodology
Chen G., Peng J.H. and Chen J.

Constitutive relationship for electrokinetic dewatering of phosphatic clay slurries
J.P. McKinney and M.E. Orazem

MAY

Production of trona concentrates using high-intensity dry magnetic separation followed by flotation
O. Ozdemir, V. Gupta, J.D. Miller, M. Çınar and M.S. Çelik

Simulation and pilot experiments on pyrite concentrate separation in a Floatex density separator
A. Remes, A. Tuikka and H. Koivo

Electrokinetic dewatering of phosphatic clay settling areas: numerical simulation and economic assessment
J.P. McKinney and M.E. Orazem

HPGR comminution for optimization of copper leaching
W. Baum and K. Ausburn

Toward determining the behavior of fragmentation functions during the impact crushing of minerals
A.L. Coello Velázquez, J.M. Menéndez Aguado, J.R. Hechavarria Pérez, A.B. Sánchez and B.A. Rodríguez

Beneficiation of a fine-sized cassiterite-bearing magnetite ore
Siqin Liu, Ye Cao, Xiong Tong and Peng Li

Gold recovery optimization of a refractory concentrate by ultrafine grinding – a laboratory study
J.A. González-Anaya, F. Nava-Alonso and E.T. Pecina-Treviño

Study of hydrocyclone classification of coal fines by CFD modeling and laboratory tests
S. Torno, J. Torrão, M. Gent and M. Menéndez

Floatability of fine phosphate in a batch column flotation cell
S. Al-Thyabar, R.-H. Yoon and D. Shin
AUGUST

Enhanced settling of fine silica by indirect A.C. electrocoagulation
R.O. Ifill and T.H. Etsell

Synthesis and performance of novel hydroxycarbamoyl carboxylic acids for the flotation of diaspor
and aluminosilicate minerals
Yu-ren Jiang, Rui Feng, Zhi-gang Yin and Yun-lai Yi

Managing copper in leach solution at the Çöpler gold mine: laboratory testing and process design
M. Botz, A. Kaczmarek and S. Orser

Response surface methodology for optimization of copper leaching from a low-grade flotation middling
Jian Liu, Shuming Wen, Dan Liu and Mengyang Lv

New image-processing algorithm for measurement of bubble size distribution from flotation froth images
N. Mehrshad and M. Massinaei

Surface thermodynamics and extended DLVO theory of Leptospirillum ferrooxidans cells’ adhesion on sulfide minerals
A. Vilinska and K. Hanumantha Rao

The solitary grain liberation model: a description of a mineral liberation model for low-grade ores
R.L. Wiegel

NOVEMBER

Thermochemistry of the Fe, Ni and Co-NH3-H2O systems as they relate to the Caron process
E. Asselin

Coarse particle fracture with the ultrafast load cell
E.T. Tuzcu, N. Dhawan and R.K. Rajamani

TECHNICAL NOTE: Beneficiation of refractory rock phosphate by calcination and flotation
S. Khoshjavan and B. Rezai

Influence of pebble mill operating conditions on measurements with an in-mill sensor
J. Alatalo, B.I. Pålsson and K. Tano

Recovery of mercury from spent silver oxide button cells
S. Aktas and M.H. Morcali

Purification of niobium oxide by dissolution and solvent extraction
K.C. Nathsarma, B.B. Nayak, P. Brahmbhatt and S. Pradhan

Leaching characteristics of copper refractory ore in sulfate media
R. van der Merwe and H. Kasaini
SECTION 3: TRANSACTIONS PAPERS
This section contains papers published only in this volume. All papers passed peer review and were accepted for publication between November 1, 2010 and October 31, 2011.

Flammability of wider conveyor belts using large-scale fire tests 345
J.H. Rowland III and A.C. Smith

Evaluation of a novel fire-blocking gel to prevent and suppress mine fires 350
A.C. Smith, D.C. Fredley, D. Lauriski and E.D. Thimons

Overview and evaluation of smoke detectors in underground mines 358
C.D. Litton

Evaluation of devices to enhance miner self-escape in smoke-filled entries 367
S.P. Harteis, D.W. Alexander, L.L. Chasko and C.J. Slaughter

Evaluation of high-temperature disposable filter elements in an experimental underground mine 373

Evaluation of a diesel exhaust cooling device for use with high-temperature disposable particulate filters 383
L. Patts and J. Hummer

Field study of longwall coal mine ventilation and bleeder performance 388
S. Schatzel, R. Krog and H. Dougherty

Face dust levels at deep-cut underground coal mines 397
J.D. Potts, W.R. Reed and J.F. Colinet

The effectiveness of several enclosed cab filters and systems for reducing diesel particulate matter 408
J. Noll, A. Cecala and J. Organiscak

Improving estimation of the accuracy of the personal dust monitor (PDM) 416
S.J. Page

Application of background-oriented schlieren (BOS) for the qualitative analysis of flow through a regulator 421
E.C. Jong, K.R. Griffin and K.D. Luxbacher

The evolution of drill bit and chuck isolators to reduce roof bolting machine drilling noise 429
D. Yantek J. Peterson, R. Michael and E. Ferro

Development of the NIOSH Determination of Sound Exposures (DOSES) mining noise exposure management software 438
E.R. Spencer, G.P. Cole and E.R. Bauer

Noise controls for vibrating screen mechanisms 446
M.J. Lowe, D.S. Yantek, H.E. Camargo, L.A. Alcorn and M. Shields

Application of impact-resistant steel sets for underground roof fall rehabilitation 452
K.J. Ma, J.C. Stankus and D. Faulkner

Roof and rib fall incident trends: a 10-year profile 462
D.M. Pappas and C. Mark

Investigation of subsidence events over inactive room-and-pillar mines 479
Yi Luo

Epidemiology: a tool for risk analysis of mine injuries 490
Ashis Bhattacherjee and Bijay Mihir Kunar

Stress, geologic and support design system (SGS) for underground mine slopes 501
J. Ma, J.C. Stankus, H. Chen, X. Li

Risk assessment for dragline productivity: a case study of GLI’s draglines in Turkey 512
N. Demirel and H.S. Duzgun
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mine dewatering and water management at Barrick Goldstrike Mine in the Carlin Trend, NV</td>
<td>519</td>
</tr>
<tr>
<td>G. Zhan, B. Listerud and M.A. Jones</td>
<td></td>
</tr>
<tr>
<td>Site investigations and geotechnical assessment for the construction of the deep underground science and engineering laboratory at the former Homestake Mine</td>
<td>526</td>
</tr>
<tr>
<td>Site-specific blasting model for mine-to-mill optimization</td>
<td>543</td>
</tr>
<tr>
<td>K.M. Kim and J. Kemeny</td>
<td></td>
</tr>
<tr>
<td>Development of a new model for blast fragmentation prediction</td>
<td>549</td>
</tr>
<tr>
<td>T. Hudaverdi, P.H.S.W. Kulsatilaje and C. Kuzu</td>
<td></td>
</tr>
<tr>
<td>A review of the many cost approach methods for minerals valuation</td>
<td>557</td>
</tr>
<tr>
<td>T.R. Ellis</td>
<td></td>
</tr>
<tr>
<td>Long-term mine planning of the Malanjkhand copper deposit</td>
<td>563</td>
</tr>
<tr>
<td>G. Samanta, B. Samanta and D. Chakravarty</td>
<td></td>
</tr>
<tr>
<td>Modeling truck-shovel energy efficiency under uncertainty</td>
<td>573</td>
</tr>
<tr>
<td>K. Awuah-Offei, B. Osei and H. Askari-Nasab</td>
<td></td>
</tr>
<tr>
<td>Effects of obstructions, sample size and sample rate on ultrasonic anemometer measurements underground</td>
<td>585</td>
</tr>
<tr>
<td>A.L. Martikainen, C.D. Taylor and A.L. Mazzella</td>
<td></td>
</tr>
<tr>
<td>Simulation of operating risk in mine feasibility studies</td>
<td>591</td>
</tr>
<tr>
<td>S. Kenzep and V. Kazakidis</td>
<td></td>
</tr>
<tr>
<td>New dimension to account for sample error and volume support in resource estimation</td>
<td>598</td>
</tr>
<tr>
<td>J.L. Deutsch, J.B. Boisvert and C.V. Deutsch</td>
<td></td>
</tr>
<tr>
<td>Resource estimation of a placer gold deposit with uncertainty: applying the Bayesian neural network model</td>
<td>606</td>
</tr>
<tr>
<td>S. Chatterjee and S. Bandopadhyay</td>
<td></td>
</tr>
</tbody>
</table>

**INDEX**

Complete index to the *Transactions of the Society for Mining, Metallurgy, and Exploration, Inc.*, Vol. 330, 2011 | 619  |