



MILLER HILITES

ISSUE 022 • WINTER 2010

INSIDE THIS ISSUE

- 1-3 ♦ Coal Fatalities

- 4-5 ♦ GLS Has a Busy Year in 2010

- 5 ♦ New Personnel

- 6 ♦ Chinese Delegation

- 6 ♦ 2010 Tradeshows and Conferences

- 6 ♦ Virginia DEQ State Lead Contract Awarded

Coal Mining Related Fatalities ... Where Are We Going?

by John E. Feddock, P.E. – Lexington Office



*John E. Feddock
Lexington, KY*

In 2009 mining fatalities fell to an all-time low for the second straight year, with 18 fatalities in the coal mine sector. While 18 coal mining fatalities in one year is still 18 too many, those in the industry thought their efforts to improve coal mine safety were finally coming to a new dawn. This was the focus of the Bluefield Coal Symposium sponsored by the Greater Bluefield Chamber of Commerce, from September 20 through September 22, 2010 in Bluefield, West Virginia. The Symposium was titled; "Continuing on the Road to Zero." The zero of course means zero lost time accidents and zero fatalities. This year's speakers were faced with the difficult task of defining the steps being taken and programs in place to reduce injuries in the mining industry, for despite the success in 2009, there have been 44 miners' lives lost this year. Especially poignant was the loss of 29 miners during the April 5 explosion incident at the Upper Big Branch (UBB) mine in Raleigh County, West Virginia. The shock of losing so many lives at one time is even more dramatic when one considers the tremendous improvements made by the industry in the last ten years. I was invited to speak at the symposium on the "Progress in Coal Mine Safety", which I expanded to ask the question "Coal Mining Related Fatalities, where are we going? - A year end 2009 Perspective of Mine Safety"



For more information regarding any news story, contact Tracy Paine at (804) 314-1684 or e-mail

tracy.paine@mma1.com

Marshall Miller & Associates
ranked a top 500 engineering firm in ENR
magazine for the eleventh year in a row!



Despite the circumstances that may have caused the UBB incident, which are still under investigation, the coal industry had indeed made tremendous gains between 2000 and 2009. Gains continued to be achieved, as I'll explain below, when faced with the largest economic recession since the 1930's, a time when the coal industry is under assault not only by the environmental community, but by a sensation seeking new media, and a government bureaucracy determined, it seems, to stamp out coal as an energy source by regulation.

The facts in 2009:

- Lowest number of coal mining fatalities and lowest non fatal days lost by injured employees ever.
- Decline in the number of underground coal mines, especially in Appalachia, while the number of surface coal mines remained relatively constant.
- Underground coal production continued its downward trend, at a rate relatively consistent since 1998.
- Man-hours worked remained relatively constant in 2008 and 2009 in underground and surface coal mines, and this level is about 20 percent higher than the manhours worked in coal mines during a low point in 2003.
- Mining employment was up, with increases in the underground sector and a steady state at the surface coal mines.

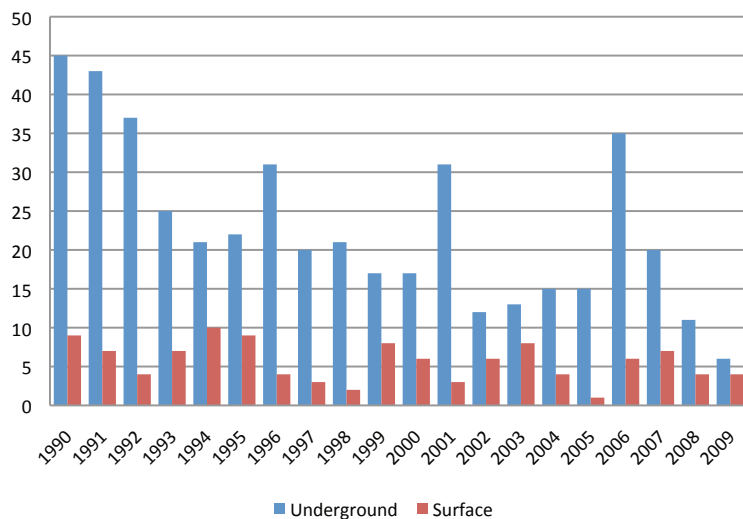
OBSERVATION: the rate of accidents decreased during a decade when mining employment and manhours spent mining coal increased dramatically.

The NFDL rate in coal declined by more than 60 percent in 10 years. No Other Industry achieved the large reductions in non fatal days lost due to injuries in such a short period of time than the coal industry during the last ten years. BUT, what about fatalities? As shown below Coal Company efforts have decreased fatalities along with the NFDL rate, but there are increasing spikes every few years due to a number of multiple fatality accidents.

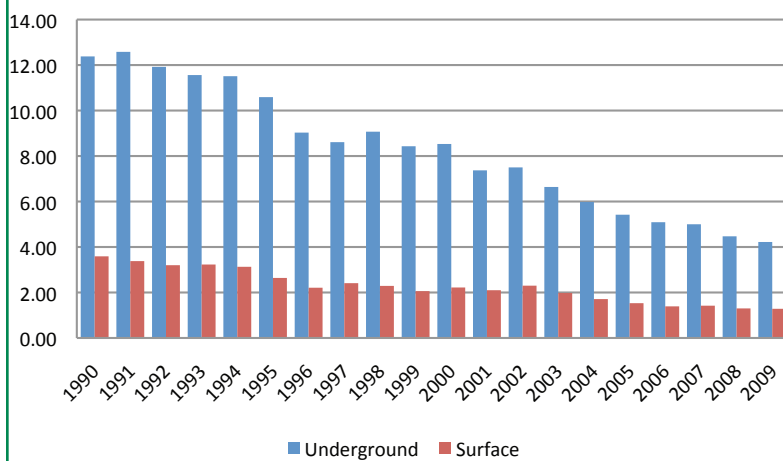
- 2010 – Upper Big Branch – 29 Fatalities
Dotiki Mine – 2 Fatalities
- 2007 – Crandall Canyon – 9 Fatalities
Gibson County – 3 Fatalities
- 2006 – Sago – 12 Fatalities
Aracoma – 2 Fatalities
Kentucky Darby – 5 Fatalities
- 2001 – Jim Walters No. 5 – 13 Fatalities
- 1996 – Mostly Single Fatalities

MSHA took most of the credit for the reductions in 2009, by stating “Contributing to the 2009 record low number of deaths is the enforcement of the Federal Mine Safety and Health Act of 1977 (which succeeded the 1969 Mine Act) and continued implementation of the Mine Improvement

Number of Fatal



Non-Fatal Days Lost Incident Rate (NFDL/200,000 MHR)



and New Emergency Response (MINER) Act, enacted by Congress in 2006.” Beginning in 2008, MSHA increased the number of its inspections, assessing over 84,000 citations and orders for violation of the mine safety and health requirements, and assessing penalties in excess of \$140 million. Did the number of increased citations, orders, and penalties actually improve safety in the coal mines?

MSHA dramatically increased the number of citations written in 2008 for both surface and underground mines as shown in the accompanying graphs. Since 2005, underground violations grew by 60 percent. The top 20 citations accounted for approximately 50 percent of the citations written. Of the Top 20 citations written during the period through 2009, “Accumulation of Combustible Material” (30 CFR 75.400) was the most frequently issued citation.

Since 2005:

- Ventilation citations grew by 55%,
- Roof Control citations by 70%,
- Equipment guarding citations by 54%,
- Electrical Cables/Splices by 78%, and
- Travelway citations by 112%.

Citations and orders at surface mines grew by 45 percent, and the Top 20 accounted for approximately 2/3 of all of the citations written by inspectors.

A more detailed review shows a shift in some areas. For example, underground citations written for "damaged rollers, or other damaged belt conveyor components" (30CFR §75.1731(a)) and "proper alignment of conveyor belts" (30CFR §75.1731(b)) were never in the Top 20 citations issued prior to 2008. Currently they rank 13th and 9th, respectively, with a combined total of 2,800 citations per year. There are other examples of a shift in the volume of citations and orders written by MSHA from areas such as "underground storage, lubricating oil and grease" and "location of firefighting equipment" which are no longer in the top 20 list after being there for the five year period prior to 2008.

Have the increased number of citations and orders written by MSHA inspectors really helped to improve safety? Is the effort to focus on the minor infractions while missing the more critical issues?

A comparison of the number of days lost to injuries, (NFDL) and the number of citations written as shown below indicates that the increase in the number of citations written have not affected the steady decline in the NFDL, and similarly, the NFDL rate.

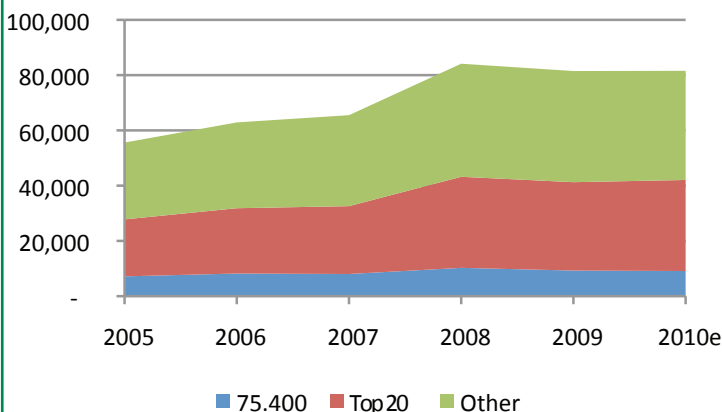
Hammering the coal mines with citations and orders has not had the desired effect in improving safety by reducing fatalities, or in changing the decline rate in NFDL, but instead has clogged the enforcement process, and minimized any cooperative spirit.

The decline in the NFDL rate has truly been an unprecedented achievement brought about by several factors. Consolidation in the industry has reduced the number of coal mines from 3,400 to 1,500 in the last 20 years. All of the top production coal companies are now public companies that have established corporate governance policies resulting in a comprehensive emphasis on safety. Programs such as Consol Energy's Absolute Zero, Alpha Natural Resource's Safety First, and Massey Energy's Safety is Job One, as well as other company efforts are widely emphasized and discussed with miners. All of the state coal associations formed by the coal companies, have working groups that focus on health and safety in the coal industry. Major multiple fatalities call for greater emphasis on the design, implementation and adoption of sound safety principles that are long established in the mining industry. Right now what should be obvious is that "Fact Finding is more effective than Fault Finding" (Carl Beckett, Progress & Power 1935).

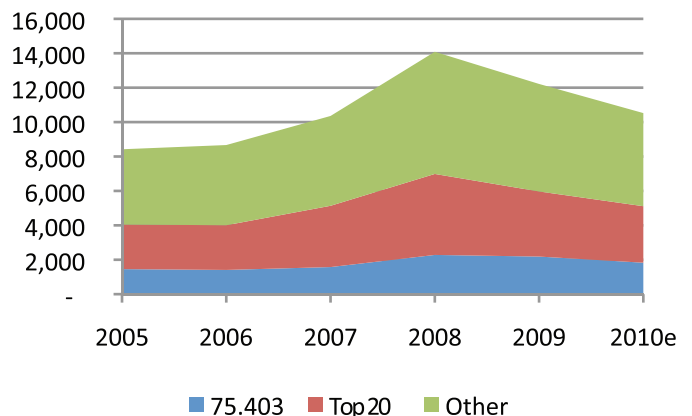
In Conclusion:

- Coal Mining is more complex than at any time in U.S. history.
- The industry is safer now than at any time in U.S. history.
- To prevent major accidents, training needs to be renewed in all facets, especially in ventilation and ground support on the regulatory side and within the coal industry.
- Zero Accidents will only occur through collaboration rather than an atmosphere of blame and accusation.
- "Learn from the mistakes of others. You can't live long enough to make them all yourself." -- Eleanor Roosevelt.

Underground Citations and Orders



Surface Mine Citations and Orders



GLS HAS A VERY BUSY 2010

By Mark Smith, P.G., Senior Project Geologist

Geological Logging Systems (GLS), a division of MM&A, has been very busy in 2010. Our large fleet of geophysical logging units provides borehole geophysical services primarily throughout the eastern U.S. We are continually expanding our services to meet the requirements of our large client base. In 2010, our logging staff has performed geophysical logging services for our clients located as far north as Chicago, Illinois; as far south as Shreveport, Louisiana; to the west to St. Louis, Missouri and to the east to the Atlantic coastal region. While the majority of our logging units are based at our Bluefield, Virginia headquarters, we have two senior logging engineers based at our Lexington, Kentucky office location, one senior logging engineer based in Herrin, Illinois; and logging engineers from the Bluefield office travel weekly to maintain a field office in Morgantown, West Virginia in order to work for several clients in northern West Virginia and southern Pennsylvania. Our coal and mineral logging services keep our logging engineers busy in the Appalachian and Illinois Basins, working for a large client base performing coal and coalbed methane (CBM) exploration projects. We also perform geophysical logging services for an ever expanding number of clients performing hydrogeological and environmental assessments, geotechnical studies, and miscellaneous other types of evaluations. We have performed logging services for over 150 clients in fourteen states to date in 2010. Among these clients are the larger consulting engineering and energy companies, large and small utilities and municipalities, and also the small and medium sized consulting businesses and small single-operation coal producers. We have provided geophysical or downhole camera services for site assessments at landfill sites, hazardous waste sites, environmental - hydrological investigations, lock and dam geotechnical - hydrological investigations, mine shaft sites, coal exploration projects, power generation plants, as well as for conventional oil wells and gas wells, CBM wells, and water production wells. We strive to provide the same level of quality service at a reasonable cost to all our clients, whether large, medium or small companies or projects.



LOGGING EQUIPMENT AND SERVICES

With fully digital geophysical logging trucks and downhole equipment, GLS has been a leader in geophysical logging services for several decades. A variety of logging probes and sophisticated processing software, which includes proprietary software developed by MM&A, has made our operation one of the most successful in the United States. The following are some of the available services:

COAL THICKNESS MEASUREMENTS

GLS has over 34 years of experience in producing high resolution density logs for coal seam thickness measurements in the coal fields of North and South America. Our staff is able to provide detailed log interpretations and coal seam and parting thickness measurements, along with roof and floor lithologies. These fully interpreted logs are produced in an AutoCAD® format from which digital drawing (.DWG) files are available. High-resolution density logs are run to provide highly accurate measurements of coal seams and parting thicknesses. Natural gamma, caliper, and resistivity curves are produced simultaneously and are used in conjunction with the open-hole density logs to provide additional lithologic correlation. Boreholes ranging from 3-inch core holes to 18-inch gas wells are frequently logged for our coal and CBM clients.

FRACTURE LOCATION, DIP AND ORIENTATION DETERMINATION WITH THE ACOUSTIC TELEVIEWER

GLS acoustic televiewer logs provide detailed information related to the location of fractures or fracture zones, as well as their dip angles and azimuths. These logs are particularly useful in coal seam roof and floor condition assessments and fracture location and orientations for geotech and hydrology applications. Acoustic televiewer logs utilize high-resolution sound waves to produce a 360° image of the borehole wall for location of fractures, bedding planes, and voids in the sidewall of an open borehole. Fractures and bedding planes are oriented to magnetic north, thus allowing both the strike and dip of the feature to be calculated. These logs are interpreted by highly experienced geologists that have been working with this type of data for many years. Deliverables include a color graphic presentation of the data, as well as a data table summarizing the various fracture or bedding locations and their associated dip angles and azimuths.



GROUNDWATER HYDROGEOLOGY APPLICATIONS

GLS maintains a variety of borehole geophysical probes used to assess the hydrogeologic conditions in a borehole or series of boreholes. The temperature probe produces a number of logs in a single pass which are used to locate water-bearing zones in a borehole including temperature and delta temperature, fluid resistivity, 16- and 64-inch normal resistivities, single-point resistance, and spontaneous potential. A natural gamma curve is also produced to provide lithologic correlation. The Electromagnetic Flowmeter measures fluid flow within a borehole to identify and measure vertical gradients and quantify flow within a well or boring and can measure extremely low flows. Other probes that are useful in ground water studies are the neutron probe, which utilizes a sealed radioactive neutron source to determine the porosity changes throughout the borehole. Also, the induction probe is used to determine the conductivity of the various borehole formations and can be used in open or PVC-cased borings. All of these probes may be run in conjunction with the acoustic televiewer and/or borehole video camera in order to fully evaluate the fractures and fracture zones, as well as other points of potential groundwater movement in a borehole.

BOREHOLE DEVIATION

GLS is capable of producing accurate measurements of vertical borehole deviation in open and cased-hole situations, using either gyroscopic equipment or magnetically oriented probes. A plot diagramming the distance from vertical as well as the azimuth of the deviation is produced along with a detailed listing of the deviation values at various points along the length of the borehole. These borehole deviation logs can be output in a "mine specific" or local coordinate system as well as relative to the borehole surface location. These services have been provided for a number of mine shaft pilot holes this year, as well as exploration borings for mineral resources and some geotechnical investigations.

New Personnel

Paul Sainato, P.E., J.D., joined MM&A's Lexington, Kentucky office as Senior Mining Engineer. Sainato will be providing technical support and engineering expertise in surface mine planning, surface mine cost analysis, federal and state permitting, lost coal and mineral claims, lease and contract disputes, and accident investigation. He will also be providing direction and support to engineers and technicians assigned to various projects. Paul will serve as primary and secondary contact between MM&A clients and regulatory agencies regarding permits, and MSHA compliance issues.

Paul comes to us from Rhino Energy LLC ending as their chief engineer at the Sands Hill Mining LLC operation for the past two years. Before that, he worked as a consultant with Engineering Consulting Services, Inc. for six years as a senior project manager. Paul is a registered professional engineer in Ohio, Illinois and Kentucky. He was admitted to the Kentucky Bar in 2002.

Geophysical Logging Systems has hired two new geophysical loggers, Steven Sandlin and Ryan S. Burcham. Since joining MM&A, Steven has completed an intensive Geophysical Logging Systems Training Program and is currently performing geophysical logging services for their coal and CBM clients in West Virginia, Virginia, Kentucky, Illinois and Ohio. Ryan Burcham is nearing completion of the training program and once finished he will be performing the same logging services as Steven.

Please welcome Sharon L. Stinnette, P.G., Aquatic Ecologist to MM&A's Beckley, WV office. Sharon has a B.S. in Geology from Virginia Polytechnic Institute and State University and is a registered geologist in Virginia. She has extensive experience conducting benthic macroinvertebrate surveys and stream habitat assessments based on EPA Rapid Bioassessment Protocols.

Paul I. McCombs, P.E., joined the Beckley, West Virginia office as Senior Engineer. He has an M.S. degree in Engineering Management from West Virginia College of Graduate Studies and a B.S. in Civil Engineering from West Virginia University. Before joining MM&A Paul was Chief Engineer with Massey Energy. Paul will be responsible for coordinating consulting engineering services, including all aspects of environmental permitting, reclamation projects, hydrology studies, subsidence reviews, refuse impoundments and special projects.

Paul Sainato



Sharon Stinnette



Paul McCombs



Ryan Burcham



Steven Sandlin





Chinese Delegation

By Danny Watson, E.I.T., Petroleum Engineer

A delegation from the Chinese Coal Design Research Institute (CCRI) visited us October 14th and 15th for an informational session and field tour related to coalbed methane and coal mine methane production. Thursday was spent in Morgantown (Lakeview Conference Center) as Ed Diminick, Steve Keim, and Danny Watson gave presentations related to coalbed methane production in the Northern and Central Appalachian Basins, coalbed methane horizontal drilling practices, and economic analysis of coalbed methane projects. It also happened to be a West Virginia University game-day in Morgantown, so Danny Watson donned his blue and gold jersey for a picture with the delegation and attempted to recruit them as fans.

Friday was spent in and around Waynesburg, Pennsylvania as representatives from Alpha Natural Resources provided tours of gas processing facilities and an active horizontal drilling rig, followed by presentations related to Alpha's CBM and CMM operations.

2010 Tradeshow Schedule Comes to an End

MM&A had a busy year with conferences and exhibiting. Below are a few of the events that MM&A personnel attended:

- Kansas Environmental Conference, Kansas City, KS
- Dam Safety South East Regional Conference, May 3-6, Charleston, WV
- Environmental & Energy Research Conference, June 6-10, 2010, Raleigh, NC
- MCIC - Environmental Health & Safety School, August 23-24, Raleigh, NC
- Coal-Gen, Aug 10-12, Pittsburgh, PA
- Kentucky Claims Association, July 23-24, Bowling Green, KY
- Joint Rail Conference, April 27-29, Urbana, IL
- The World of Coal Ash, May 9-11, Denver, CO
- Midwest Energy & Climate Policy Conference, June 8-10, St Louis, MS
- AREMA, August 29 - September 1, Orlando, FL
- Railroad Conference, Oct 26-28, 2011, Urbana, Illinois
- DUG East - Marcellus and More: Appalachian Shales, November 2-4, Pittsburgh, PA
- Virginia Association of Hazardous Materials Response Specialists, October 18-22 Hampton, VA
- MILCON 2010 Conference in Greensboro, NC, October 21-22, Greensboro, NC
- Aggregates Forum & Expo, February 15-18, Cincinnati, OH
- WV Coal Association - Mining Symposium, February 3-5, Charleston, WV
- North American Prospect Expo (NAPE), February 11-12, Houston, TX
- East Tennessee Environmental Conference, March 16-17, Kingsport, TN
- Virginia Transportation Construction and Alliance (VTCA) Spring Conference & Trade Show, April 14 - 16, Hampton Roads Convention Center & Embassy Suites
- Coal Prep and Agg Conference, April 27-29, Lexington, KY



Since 1975

Providing Environmental & Engineering Solutions

- Solid and Hazardous Waste Management
- Environmental Audits
- Environmental Site Assessments
- Remediation Design and Implementation
- Voluntary Remediation Programs
- Brownfield Redevelopment
- Risk Assessments
- Compliance/Permitting (Air, Water, Wastewater)
- Fugitive Dust Management
- Infrastructure Design
- Civil Design
- Stormwater Management
- Water/Wastewater Engineering
- Dam and Impoundment Design
- Solid Waste Engineering
- Hydrogeology and Hydrology
- Stream Restoration
- Construction Management
- Carbon Management
- Litigation Support

www.mma1.com



Panel designed for the 2010 North Carolina Military Construction Summit (MILCON) in Greensboro, NC



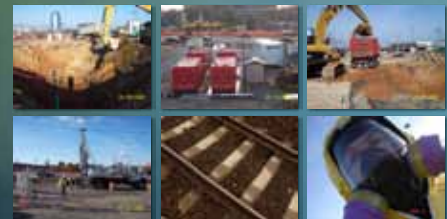
Tracy Paine and Chuck Cline
DUG East - Marcellus and More:
Appalachian Shales Conference
in Pittsburgh, PA



Providing Environmental and Engineering Solutions Since 1975

- Expert Witness
- Environmental Site Assessments
- Environmental Impact Studies
- Real Property Environmental Auditing
- Access (Right of Entry) Agreement
- Fugitive Dust Management
- Rail Line Abandonment
- Risk Assessments and Development of Site-Specific Cleanup Levels
- Water/Wastewater Design Services and Construction Management
- Emergency Response Management
- Telecommunications Permitting
- Real Estate Transactions
- Voluntary Remediation/Brownfields Redevelopment
- Compliance and Permitting
- Air and Water Permitting and Compliance
- LNAPL Plume Mobility and Stability Evaluation
- Chemical Fate and Transport Modeling
- Roadway and Paving designs
- Grading Plans
- Hydrology and Stream Hydraulics
- Stormwater control and treatment
- Railyard Infrastructure
- Parking and Access road Designs
- Bridge Designs
- Project and Construction Management
- Design/build of Fueling Platforms and Support Facilities
- Civil Design of Roadways and Infrastructure

www.mma1.com



Panel and brochure designed for the
Transportation Research Board (TRB) 2010
Environment and Energy Research Conference,
Raleigh, NC



MARSHALL MILLER & ASSOCIATES

534 INDUSTRIAL PARK ROAD
BLUEFIELD, VA 24605

HEADQUARTERS, VA

534 Industrial Park Road
Bluefield, VA 24605
(p) 276.322.5467 (f) 276.322.1510
(e) corp@mma1.com

PENNSYLVANIA

3913 Hartzdale Dr, Suite 1306
Camp Hill, PA 17011
(p) 717.730.7810 (f) 717.730.7812
(e) camphill@mma1.com

KANSAS

5700 Broadmoor Suite 504
Mission, KS 66202
(p) 913.648.4424 (f) 913.648.4763
(e) lenexa@mma1.com

TENNESSEE

10376 Wallace Alley Street
Kingsport, TN 37663
(p) 423.279.9775 (f) 423.279.9777
(e) kingsport@mma1.com

KENTUCKY

5480 Swanton Drive
Lexington, KY 40509
(p) 859.263.2855 (f) 859.263.2839
(e) lexington@mma1.com

VIRGINIA

10988 Richardson Road
Ashland, VA 23005
(p) 804.798.6525 (f) 804.798.5907
(e) ashland@mma1.com

LOUISIANA

910 Pierremont Road, Suite 117
Shreveport, LA 71106
(p) 318.868.4848 (f) 318.868.4849
(e) bossiercity@mma1.com

WEST VIRGINIA

601 Morris Street, Suite 204
Charleston, WV 25301
(p) 304.344.3970 (f) 304.344.3986
(e) charleston@mma1.com

NORTH CAROLINA

5900 Triangle Drive
Raleigh, NC 27617
(p) 919.786.1414 (f) 919.786.1418
(e) raleigh@mma1.com

WEST VIRGINIA

200 George Street, Suite 6
Beckley, WV 25801
(p) 304.255.8937 (f) 304.255.8939
(e) beckley@mma1.com



MILLER HILITES
ISSUE 022 • WINTER 2010
OFFICE LOCATIONS

