



Scott Shields

2014 Medal of Merit under 40

Manager, Mining Application Engineering, Joy Global Surface Mining. Scott M. Shields is a fifth-generation Arizona Miner. In 1995 he joined the Phelps Dodge Morenci Mine as a Surveyor and despite his young age, was successfully able to implement new techniques (both conceptual and in field) to improve mine operations. Shields initiated ground-breaking work with GPS integration and co-authored *Optimization of GPS on Track Type Dozers* and *GPS in the Pits: Differential GPS Applications at the Morenci Copper Mine*. This novel idea of building roads by using GPS without first conducting surveys won best of session at the Institute of Navigation conference and resulted in Shields being sponsored by Senator John McCain to represent Phelps Dodge Mining Company for "GPS on the Hill."

During his tenure at Phelps Dodge and later with Freeport-McMoRan Copper & Gold Inc., Shields helped to develop sulfide leaching with bacterial augmentation, advanced electrowinning technologies, leach pad monitoring, and GPS integration. While serving as the Autonomous Mining Program Site Coordinator, Shields supervised the construction of the San Juan Experimental Mine and was instrumental in laying the groundwork for a real autonomous mine of the future.

Shields left Freeport-McMoRan in 2007 to earn a B.S. degree in Mining Engineering at The University of Arizona. While attending school, he was employed by the U of A as an associate mine engineer and was placed in charge of overseeing the design and

construction of the new San Xavier Underground Training Center, facilitating research funded jointly by mining companies, private organizations, and the government.

Although challenged with full-time work and school, Shields was the winner of the 2008 Copper Club Scholarship, the 2009 Leonard Judd Freeport-McMoRan Foundation Scholarship, the Mining Engineering nominee for the Thomas G. Chapman fellowship and scholarship, the 2010 MMSA/SMEF Presidential Scholarship, and was the UA College of Engineering 2011 Outstanding Senior in Mining Engineering. In addition, Shields graduated Magna Cum Laude in 2011 and was inducted into Tau Beta Pi, a National Engineering Academic Fraternity.

Shields now manages a team of Joy Global Mining Engineers supporting the applications of P&H Surface Mining and Joy Mining Machinery Underground products. Notably he has provided optimization and best practice in more than 60 mines and in 18 countries on five continents. Shields is an adviser for The University of Arizona ILB, Montana Tech MIAB, University of Missouri Science and Technology Advisory Committee, South Dakota School of Mines ECE Advisory Board, and he also serves as an Executive Committee Member and officer of the SME.