



Session: Underground Mining #1
 Tuesday, Sept. 23
 10:15am – 12:15pm
 Room N259, Las Vegas Convention Center, Upper Concourse

Title: Design of Mine Seals to Meet New MSHA Standards

Presenter: Syd S. Peng, Khaled Morsy, and Reddy Kallu, Department of Mining
 Engineering, West Virginia University

Abstract:

Under a NIOSH contract, a comprehensive study is being performed using the three-dimensional computer modeling to develop methods for designing mine seals to meet the new MSHA seal standards. The parameters analyzed include explosion pressures (50 and 120 psi), mine geometry (entry width and height), seal materials (solid, block and combination), surrounding rock conditions (strong, average and weak), contact conditions between seal and surrounding rocks (direct-contact, notched, and pre-stressed), roof-to-floor convergence loading (low, moderate and high), and seal reinforcement (full face, partial, rebars, angled steel, etc.).

- NIOSH test data on mine seal structure conducted between 1990 and 2006 will be analyzed to determine the criteria of seal failures for various types of seals.
- Based on the computer analysis and the failure criteria determined from the NIOSH test data, a design chart will be developed for design of various types of seals.