

Analysis on Fault Zone Characteristics and Disaster Reason Inducing Alluvium Material Burst into Coal Mine

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Abstract When Loose Alluvium material busted into underground Coal mine, it caused serious accidents, so it was very necessary to study the basic conditions and cause of disaster for the purpose to predict and prevent it. This research was on the case of F2 fault bursting alluvium material happened in the Dongfantuo coalmine, Kailuan. By 3-D seismic exploration, drilling, structure historical analysis and experimental testing of substances fault, the structural geometric features, hydrogeological nature and engineering geological properties were discovered that: formed by multiple faults, the fracture zone was of large width, mud-rich fault gouge and mud rich in Kaolinite clay which was the foremost condition for fault activation. By water chemistry analysis ,water level observation, channel investigation and transient electromagnetic detection to alluvium bottom, hazard factors were identified. It concluded that tunnel engineering disturbed fault zone two years ago and buried hazards. High hydraulic head difference resulted fault zone leakage and its mechanical properties were long-term weakened. So under the function of time affection, alluvium material burst was resulted through F2 fault zone.

Keywords fault zone, alluvium material, water and mud inrush, hazard factors, fault activation, time effect