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LIST OF SYMBOLS AND ABBREVIATIONS

MD	Mechanised Depillaring
CM	Continuous Miner
CIL	Coal India Limited
CSIR	Council of Scientific and Industrial Research
CIMFR	Central Institute of Mining and Fuel Research
CMP	Continuous Miner Panel
SECL	South Eastern Coalfields Limited
ECL	Eastern Coalfields Limited
SCCL	Singareni Collieries Company Limited
GDK 5A	Godavari Khani Incline Mine no. 5A
VK 7	Vakilpalli Incline Mine no. 7
CMR	Coal Mines Regulation
DGMS	Directorate General of Mines Safety
FOS	Factor of Safety
RLH	Rock Load Height
BD	Bolt Density
FLAC 3D	Fast Lagrangian Analysis of Continua three Dimentional
FISH	Programming language embedded within FLAC3D
MC	Mohr-Coulomb
MCSS	Mohr-Coulomb Strain-Hardening/Softening
MPa	Mega pascal
GPa	Giga pascal

Kg	Kilogram
m^3	cubic meter
m^2	Square meter
ECL	Eastern Coalfields Limited
FOS	Factor of Safety
S_p	Strength of pillar
σ_v	Vertical stress
σ_p	Stress on pillar
γ	Unit weight of overlaying rock
D	Depth of working
B	Gallery width
H	Working depth
w	Width of pillar
h	Height of pillar
σ_c	UCS of pillar
W	Width of pillar corner to corner
S_1	Strength of in situ cubical coal pillar
σ_h	Horizontal stress
K	Bulk modulus
G	Shear modulus
E	Young's modulus
ν	Poisson's ratio
IRB	Instrumented rock bolt
G	grout shear modulus
t	annulus thickness

D	diameter of roof bolt
c	cohesion
Φ	friction angle
τ_{peak}	shear strength of rock/grout interface
I	Moment of Inertia of rock bolt bar
Cs_{nstiff}	Stiffness of the normal coupling spring
Cs_{ncoh}	Cohesive strength of the normal coupling spring
Cs_{nfric}	Friction strength of the normal coupling spring
σ_1	triaxial strength of rock mass
σ_3	confining stress
σ_{cm}	uniaxial compressive strength rock mass
σ_t	tensile strength of intact rock
σ_{tm}	tensile strength of rock mass
RMR	Rock Mass Rating
b	exponent in failure criterion for intact rock
b_m	exponent in failure criterion for rock mass
RBBLS	roof bolt based breaker line support
LHD	Load Haul Dumper
SDL	Side Discharge Loader