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Handbook on Mine Fill Handbook on mine fill : a practical reference Minefill 2020-2021 Mine Fill 2014 Handbook on Mine Fill Innovations in Mining Backfill Technology Mine Fill Technology Fill Technology in Underground Metalliferous Mines MINEFILL 2001 A Proposed Modified Percolation-rate Test for Use in Physical Property Testing of Mine Backfill Mine Waste Management in China: Recent Development Assessment of Mine Fill Properties, Warrego Mine, N.T. Rock Mechanics Investigations at the Lucky Friday Mine Innovations in Mining Backfill Technology Mechanics of Mine Backfill Underground Mining Methods Tailings and Mine Waste 2002 Filling with Unclassified Tailing in Modified Cut-and-fill Stopes, Dayrock Mine, Wallace, Idaho Mining Methods at the Campbell Mine of the Calumet & Arizona Mining Co., Warren, Ariz An Investigation Into the Develpoment and Potential of Foam Minefill PT. 1. ANALYSIS OF GRADING EFFECTS ON HYDRAULIC AND CONSOLIDATED FILL. PT. 2. MINE FILL SYSTEM DESIGN BASED ON OPTIMIZATION. Mine Planning and Equipment Selection Geotechnical Engineering for Mine Waste Storage Facilities Field Evaluation of Hydraulic Backfill

Compaction at the Lucky Friday Mine, Mullan, Idaho The Use of Past Backfill to Increase Long-term Mine Stability and Ore Extraction Vibratory Compaction of Mine Hydraulic Backfill Characteristics of deslimed woodlawn mill tailing as underground mine fill Surface Subsidence Control in Mining Regions MSHA coal mine impoundment inspection and plan review handbook Experimental and In-situ Investigation Into Pipeline Wear in Mine Backfill Distribution Systems Laboratory Study of Factors Influencing Waterflow in Mine Backfill The Analysis and Selection of the Most Appropriate Mine Fill Type at Sally Malay Nickel Operation Geologic Investigations Near an Underhand Cut-and-fill Stope, Lucky Friday Mine, Mullan, ID Earth Pressure at Rest and One-dimensional Compression in Mine Hydraulic Backfills Pressure Losses Due to Bends and Area Changes in Mine Airways Effect of Cement in Mine Fill on Flotation The Determination of Experimentally Based Load-deformation Properties of a Mine Fill Mining Methods and Costs at the Champion Copper Mine, Painesdale, Mich Mining with Backfill Review and Selection of Underground Backfill System at Ballarat Gold Project

Minefill 2020-2021 Jun 20 2023 The series of International Symposiums on Mining with Backfill explores both the theoretical and practical aspects of the application of mine fill, with many case

studies from both underground and open-pit mines. Minefill attendees and the Proceedings book audience include mining practitioners, engineering students, operating and regulatory professionals, consultants, academics, researchers, and interested individuals and groups. The papers presented at Minefill symposiums regularly offer the novelties and most modern technical solutions in technology, equipment, and research. In that way, the papers submitted for the Minefill Symposia represent the highest quality and level in the conference domain. For the 2020-2021 edition organizers hope that the papers presented in this publication will also be received with interest by readers around the world, providing inspiration and valuable examples for industry and R&D research.

A Proposed Modified Percolation-rate Test for Use in Physical Property Testing of Mine Backfill Nov 13 2022

Innovations in Mining Backfill Technology Mar 17 2023 Proceedings of the 4th International Symposium held in Montreal, Oct.2-5, 1989. Paper topics include: review, laboratory testing, modelling and design, rockburst control, soft rock mining, and system design.

Handbook on Mine Fill Aug 22 2023

Mine Planning and Equipment Selection Nov 01 2021 This edited volume includes all papers presented at the 22nd International Conference on

Mine Planning and Equipment Selection (MPES), Dresden, Germany, 2013. Mineral Resources are needed for almost all processes of modern life, whilst the mining industry is facing strict requirements regarding efficiency and sustainability. The research papers in this volume deal with the latest developments and research results in the fields of mining, machinery, automatization and environment protection.

Mining Methods at the Campbell Mine of the Calumet & Arizona Mining Co., Warren, Ariz Feb 04 2022 This paper describing the inclined cut-and-fill, and the semishrinkage methods of mining at the Campbell mine of the Calumet and Arizona Mining Co. at Warren, Ariz., is one of a series being prepared by the United States Bureau of fines on mining methods, practices and costs in the various mining districts in the United States. The major portion of the production from the Bisbee mines of the company is mined by these methods. The total average yearly production for the last two years has been 493,612 tons of 5 per cent copper ore. The average employment in the mining department eras 940 men. With the exception of a small tonnage mined for the high iron and sulphur content, the ore is direct-smelting and is mined for its copper conntent and associated gold and silver values.

Mine Fill 2014 May 19 2023

Vibratory Compaction of Mine Hydraulic Backfill Jun

27 2021

Effect of Cement in Mine Fill on Flotation Aug 18 2020

Innovations in Mining Backfill Technology Jul 09 2022

Mining with Backfill May 15 2020

Handbook on Mine Fill Apr 18 2023

Mining Methods and Costs at the Champion Copper Mine, Painesdale, Mich Jun 15 2020 This paper, describing the mining practice at the Champion mine of the Copper Range Copper Mining Co., is one of a series of papers on mining methods and costs being prepared by the United States Bureau of Mines. Mining practice at the Champion mine has undergone considerable change during the last four years. Previous to that time the mine was worked by the horiztontal cut-and-fill method, the stopes starting near the shafts and advancing away from them (fig. 2. The floor pillars were mined by the inclined cut-and-fill method, working on the retreat or toward the shafts (fig. 1). At present the mine is being developed to stope entirely on the retreat by sublevel inclined cut-and-fill method.

Geologic Investigations Near an Underhand Cut-and-fill Stope, Lucky Friday Mine, Mullan, ID Nov 20 2020

PT. 1. ANALYSIS OF GRADING EFFECTS ON HYDRAULIC AND CONSOLIDATED FILL. PT. 2. MINE FILL SYSTEM DESIGN BASED ON OPTIMIZATION. Dec 02 2021

The Determination of Experimentally Based Load-deformation Properties of a Mine Fill Jul 17 2020
Assessment of Mine Fill Properties, Warrego Mine, N.T. Sep 11 2022
Mine Fill Technology Feb 16 2023
Mine Waste Management in China: Recent Development Oct 12 2022 This book introduces recent development of technologies for mine waste management in China. For hard rock mines, the main mine wastes are tailings, and the tailings can be disposed above-ground and/or underground. The technology of consolidated tailings stockpile (CTS) that disposes tailings above-ground is introduced, and the application of this technology is also demonstrated. Besides, the technology of cemented tailings (or paste) backfill (CTB or CPB) which deals with tailings underground is also discussed. The properties of CTB materials and the utilization of CTB technology are described and analyzed. For coal mines, the main mine wastes are coal gangue and fly ash. The technology of cemented coal gangue-fly ash backfill (CGFB) that manages coal mine waste underground is presented. The THMC coupling properties of CGFB materials are investigated, which can contribute to a better design of stable, durable and environmentally friendly CGFB mixtures. The application of CGFB technology in a coal mine is also presented. This book, which systematically reviews and discusses

the development of mine waste management technologies in China, is expected to provide readers comprehensive information about mine waste management.

MSHA coal mine impoundment inspection and plan review handbook Mar 25 2021

Characteristics of deslimed woodlawn mill tailing as underground mine fill May 27 2021

Filling with Unclassified Tailing in Modified Cut-and-fill Stopes, Dayrock Mine, Wallace, Idaho Mar 05 2022

Laboratory Study of Factors Influencing Waterflow in Mine Backfill Jan 23 2021

Rock Mechanics Investigations at the Lucky Friday Mine Aug 10 2022

Fill Technology in Underground Metalliferous Mines Jan 15 2023 "The technology of mine fill in underground metalliferous mines encompasses a wide variety of professional fields. Mining engineering - operating, planning, mineral processing, rock mechanics, soil mechanics, environmental engineering, cement technology, Pozzolan chemistry, mineral chemistry, industrial engineering [and] geology. Aspects of each of these fields are contained within this workshop manual. However, the approach adopted in its preparation is overwhelmingly to cater for the requirements of mining personnel responsible initially for mine planning and design and ultimately for mine

production. Technical detail is included only to a level as required by such personnel. Mine fill and mining methods employing fill are used in many centres and in many countries around the world. Each particular operation has its own particular set of inherent, evolved and introduced conditions of fill practice. It is not generally recognised just how many aspects of fill practice are, rightly or wrongly, common from one operation to another, and it is one purpose of this manual to highlight such factors of common applicability. Conversely, aspects of fill practice successfully applied in one operation are sometimes lifted in totum and imposed upon another operation, without full analysis of suitability or otherwise. It is therefore a further purpose of this manual to highlight the need to analyze each filling operation separately, to define and describe parameters peculiar to it"--Page 1.1-1.2.

Surface Subsidence Control in Mining Regions Apr 25 2021

Review and Selection of Underground Backfill System at Ballarat Gold Project Apr 13 2020 "In the past, mine fill has had a relatively plain image, with filling being synonymous with waste disposal. However, the introduction of three factors, cement addition to fill, environmental considerations and resource conservation pressures, has seen the image of mine fill come under closer scrutiny. These days mine fill takes a very important role in overall

mine performance." -- Background.

Handbook on mine fill : a practical reference Jul 21 2023

Tailings and Mine Waste 2002 Apr 06 2022 The proceedings in this work present 60 papers on mine and mill tailings and mine waste, as well as current and future issues facing the mining and environmental communities. This includes matters dealing with technical capabilities and developments, regulations, and environmental concerns.

Geotechnical Engineering for Mine Waste Storage Facilities Sep 30 2021 The book is a comprehensive treatment of the application of geotechnical engineering to site selection, site exploration, design, operation and closure of mine waste storage facilities.The level and content are suitable as a technical source and reference for practising engineers engaged both in the design and operational management of mine waste s

The Analysis and Selection of the Most Appropriate Mine Fill Type at Sally Malay Nickel Operation Dec 22 2020

Earth Pressure at Rest and One-dimensional Compression in Mine Hydraulic Backfills Oct 20 2020

Experimental and In-situ Investigation Into Pipeline Wear in Mine Backfill Distribution Systems Feb 21 2021 "Mine backfill is used to fill underground voids left behind after ore extraction in the mining

process. It is most commonly used to provide strength and increased stability to the underground mine, allowing for increased production of adjacent stopes. In hydraulically transported backfill, abrasive slurries of sand and/or mine tailings, water and a binder material are transported through a pipeline system from surface to underground stopes, creating significant wear in the pipelines in some mines and minimal wear in others. The capability for wear rate prediction of mine backfill distribution systems is beneficial for improved safety and operational performance of underground mines. In this investigation, the pipeline wear of backfill distribution systems in seven Canadian mines is investigated through laboratory wear tests and in-situ measurements. The objective is to develop a test that can predict wear in mine backfill distribution systems, with the ultimate aim of supporting the development of a predictive wear model." --

An Investigation Into the Develpoment and Potential of Foam Minefill Jan 03 2022 "Mine backfill, which is used to fill underground voids created during mining excavations, has recently become an integral part of underground mining. Many mines re-use mine tailings--created when valuable minerals were separated from gangue minerals in the mine processing plant--as mine backfill to reduce environmental exposure to tailings, maintain

underground stability, and increase ore recovery. Three types of mine backfill are currently used in underground mining excavations: hydraulic, paste, and rock backfill. However, these materials have limitations that encourage ongoing research for innovative approaches to reduce weight, improve rheology, and minimize costs. Foam minefill (FMF) is a novel material proposed for backfilling mines, fabricated by mixing stable foam into a mixture of tailings, binders, and water using a foaming agent and foam generator. This action creates micro-air bubbles within the FMF mass, resulting in a cellular structure. The new filling material has a patent pending by McGill University. This research develops and investigates the properties of FMF, and explores its potentials. Uniaxial compressive strength (UCS), mercury intrusion porosimetry, microscopy, and rheology tests were carried out to achieve the research objectives. Samples of FMF were prepared using a sulfide-free tailings from a copper mine as the inert material, normal Portland cement as the binding agent, and Stable Air® foam as the air entraining agent. Properties were compared among samples prepared using different binder dosages, pulp densities, volumes of air entrained, and foam mixing times. Given that sulfide minerals commonly present in mine tailings pose problems in terms of oxidation and deterioration of backfill material, sulfide tailings from a gold mine were used to

prepare foamed paste fill (FPF) samples for a second set of laboratory experiments. The FPF was compared to conventional paste fill to investigate how the incorporation of foam affects the properties of paste fill. Sulfide-free FMF properties were highly influenced by the binder dosage, volume of air entrained, and the interaction between these two variables. A prolonged mixing time appeared to destroy the surfactant molecules that stabilize the air bubbles. This ultimately resulted in the collapse of the entire cellular structure in the FMF and a significant decrease in UCS and FMF density. Moreover, air bubbles tended to coalesce when the volume of entrained air was increased. In FPF made with gold tailings containing sulfide, elevated amounts of foam reduced the UCS in the long term, probably by increasing oxygen diffusion into the mixture and promoting pyrite oxidation. However, addition of 5% air improved the UCS of the FPF samples after 56 days of curing. Results show there is a strong potential for foam fill technology in mining applications, especially in areas where there is a shortage of tailings or lack of water resources. The addition of air can compensate for this shortage and complete the void filling. Moreover, the use of foam can significantly decrease backfill density and promote a safer working environment for the miners." --

Pressure Losses Due to Bends and Area Changes in

Mine Airways Sep 18 2020

The Use of Past Backfill to Increase Long-term Mine Stability and Ore Extraction Jul 29 2021 Research and experience using various types of mine backfill - hydraulic, rock, paste, and blended - has indicated several benefits to the mining industry. Backfill is a general term that refers to any waste material that is placed into underground mine workings. Paste backfill in particular has shown environmental and economic benefits. Paste fill is generally produced from total mine tailings, meaning that it can include waste rock, sands, and clay-sized particles. It also contains no free water, meaning that water will not flow freely through it after placement causing post filling shrinkage. These characteristics make it the most environmentally "friendly" backfill option currently available. In addition, paste backfill is non-segregating and stackable, containing about 80% solids by weight, and having the consistency of medium-slump concrete, containing a cementitious content. These characteristics make paste backfill the best option for post-mining ground control in room and pillar coal mines. There are two main bodies of research regarding paste backfill. Thefirst studies its composition, application, and performance in past and present mining environments; the second studies its theoretical application for both mine support and waste disposal. While this research has provided much for

the burgeoning technology of paste backfill, little has been done to investigate its economic application to the industry in room and pillar coal mines. At present, surface disposal of waste is generally cheaper than underground disposal. The goal of this thesis is to initiate discourse investigating the hypothesis that paste backfill may be used in such a way as to allow for increased coal extraction, which may then not only cover the additional costs of underground waste disposal, but potentially increase overall mine profitability. Inherent to this discourse will be a consideration of the following issues: The potential for increased extraction.Data from three Illinois Basin room and pillar coal mines were collected and used for this thesis. Theoretical computer modeling using LaModel and Phase2, empirical analysis of mine stability, physical testing using simulated paste backfill models, and comparative cost analyses considering current and hypothetical mining scenarios were conducted to identify these potential benefits and their consequences, both theoretical and practical.

MINEFILL 2001 Dec 14 2022 The Minefill series of symposia offers an international forum for exchanging ideas; presenting new technologies; and reviewing advancements in preparing, placing, and using mine backfills. The papers in this volume highlight recent advances in the industry, including

a number of new paste-plant start-ups and increased industry knowledge of backfill behavior. Case histories are presented to illustrate the practical application of new technlogies. Because treatment of mine wastes is an increasingly important and visible aspect of mining, the information shared at this symposium and in this volume is crucial to success in the industry.

Mechanics of Mine Backfill Jun 08 2022 Mine backfilling is the process of filling large underground mining voids ("stopes") with a combination of tailings, water and small amounts of cement, to promote regional stability. Stopes are often in excess of 20 m x 20 m in plan dimensions and 40-50 m tall, and can be filled within a week. Barricades are constructed in all tunnels ("drives") that access the stope to contain the backfill material. In recent years, a significant number of failures of mine backfill barricades have occurred, resulting in the inrush of slurry backfill into the mine workings. In addition, sampling has shown material strengths in situ to be far greater than equivalent mixes cured in the laboratory (indicating the potential for reducing the cement content). The purpose of this thesis is to apply soil mechanics principles to the mine backfill deposition process with the intent of providing some insight into these issues. In many cases, filling, consolidation and cement hydration all take place at a similar timescale, and therefore, to understand

the cemented mine backfill deposition process it was necessary to appropriately couple these activities. Developing appropriate models for these mechanisms, and coupling them into a finite element code, forms the core of this thesis. Firstly, the fundamental processes involved in the cementing mine backfill deposition process are investigated and represented using theory founded on basic physical observations. Using this theory, one- and two-dimensional finite element models (called CeMinTaCo and Minefill-2D, respectively) are developed to fully couple each of the individual mechanisms. A centrifuge experiment was undertaken to investigate the interaction between consolidation and total stress distribution in a cementing soil. The results of this experiment were also used to verify the performance of Minefill2D. Due to scale effects, the centrifuge experiment was unable to fully couple the interaction of the cement hydration and consolidation timescales. To achieve this, a full scale field experiment was undertaken. The simulated behaviour achieved using Minefill-2D (with independently derived material properties) provided a good representation of the consolidation behaviour. Finally, a sensitivity study carried out using Minefill-2D is presented. This study enables some useful suggestions to be provided for managing the risk of excessive barricade stress, and for preparing laboratory samples to more

appropriately represent in situ curing conditions. Field Evaluation of Hydraulic Backfill Compaction at the Lucky Friday Mine, Mullan, Idaho Aug 30 2021 Underground Mining Methods May 07 2022 Underground Mining Methods presents the latest principles and techniques in use today. Reflecting the international and diverse nature of the industry, a series of mining case studies is presented covering the commodity range from iron ore to diamonds extracted by operations located in all corners of the world. Industry experts have contributed 77 chapters. This book is certain to become a standard for every practicing mining engineer and student alike. Sections include: General Mine Design Considerations, Room-and-Pillar Mining of Hard Rock/Soft Rock, Longwall Mining of Hard Rock, Shrinkage Stoping, Sublevel Stoping, Cut-and-Fill Mining, Sublevel Caving, Panel Caving, Foundations for Design, and Underground Mining Looks to the Future.

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