BUSITEMA UNIVERSITY
Pursuing Excellence

FACULTY OF ENGINEERING

DEPARTMENT OF MINING AND WATER RESOURCES ENGINEERING

ASSESSMENT OF FACTORS THAT LOWER PRODUCTION IN LONGHOLE STOPING MINING METHOD PRACTICED AT TIIRA GOLD MINE.

By

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ABSTRACT

This was conducted in order to establish the factors that lower production , evaluate the identified factors and provide suggestions so as to increase production of the mine .it includes overcoming the excessive oversize generated in the mining parameters.

From literature review, the parameters of drilling and blasting that determine the degree of fragmentation in underground blasting were established.

The factors were identified using open and close ended questionnaires and interviews and the factors which were worked on, were selected according to their frequency in the questionnaires The questionnaires were distributed to engineers, operators and managers with the operators taking the most part in questions

The identified factors were Drilling parameters ,Blasting ,Loading and haulage, Availability and utilization of machines ,Unplanned maintenance ,Mine Schedule and Scheduled time ,operators skills ,lack of motivation ,ventilation ,backfilling, rock supporting.

And the ones worked on in this project are Drilling parameters, Blasting, Loading and haulage Availability and utilization of machines, unplanned maintenance, and Mine Schedule and Scheduled time

Algorithm for the total analysis and generation of the parameters most fit to minimize the generation of excessive oversize on underground mine were formulated. Field data, experiment and measurement data collection was made in respect of the mining and geological conditions and the actual parameters of drilling and blasting at the Tiira data analysis was based on the specially devised algorithm will be made and the design parameters generated and compared with the actual to establish the reviews of the drilling and blasting parameter s which have to be made in order to overcome the problem of excessive generation of oversizes in the mine. Also ranking of the factors according to their frequency was done and the most critical factors were unplanned maintenance , availability and utilization of equipment and drilling and blasting.

The report is made of two parts, the first part is introduction part and the second part is main part. The introduction part covers the background information of the company, statement of the problem and the objectives of this project.

The main part includes descriptions of the methodology followed and the literature review carried out in order to fulfill the objectives set of the project. Data collected is current design and actual from the field to see if the design is matching with the designed. Also, the current practice

at the field, observation was done to see if they follow the required procedures of the drilling and blasting.

The findings show that, the drilling and blasting parameters is not compatible with mining and also the critical factors contribute a lot to low production Then, the possible solution is to recommend appropriate maintenance practices ,benchmarking practices and also proper supervision and all is provided in this report.

DECLARATION

I, NUWAREEBA EDSON do hereby declare that this research project report is my own original work and that it has not been published and/or submitted for any academic award to any higher institution of learning. All the work contained in this report is as a result of my research except where cited.

NUWAREEBA EDSON

Date....01/06/2016.....

APPROVAL

This project report has been submitted for examination with approval from the following supervisors:

MR.NASASIRA HILLARY

MAIN SUPERVISOR

Date: .....

MR. TUGUME WYCLIFFE

CO-SUPERVISOR

Date: .....

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throughout the development of this project

DEDICATION

I dedicate this project report to my beloved father Mr. Kankiriho Abiaz and to my mum Ms. Natukunda Annnet for the selfless care and support provided to me ever since childhood. I thank you for the spirit of hard work, courage and determination you have instilled in me throughout my school days till today.

I also dedicate this to Busitema University and mining students

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ACRONYMS

Grl greenstone limited
Bstm busitema university
M meters

CHAPTER ONE:

1.1 Introduction

This chapter presents the background to the study, problem to be addressed by the study, justification of the study, the objective and the scope of the study.

1.2 Background

The underground mining method in which ore is extracted and stope is left empty during the mineral extraction process is named Longhole Stoping. .Mining in longhole stoping is carried out from horizontal levels and sublevels with respect to vertical intervals. Ore is drilled and blasted from sublevels. The ore broken in large vertical slices falls to the bottom of the empty stope, where it can be loaded for transport out of the mine (Hartman, 1992).

This method allows for a low safety and health risk as well as improved working environment. Physical work is reduced and it is easier to motivate the workforce. Another advantage is the improvement in grade due to better control of dilution, as only the channel width of the ore body is mined. This reduces ore transport costs and improves cost efficiency per ounce. Efficient use of large-scale blasting makes longhole stoping one of the lowest-cost underground mining methods available.

MDM Engineering Group's African Barrick Gold (ABG) mining operation in Tanzania was given the award for its operations at Bulyanhulu, which is the company's largest long-life underground gold mine. The narrow-vein operations extracts gold, silver and copper mineralization from sulfides, and has an expected lifespan of 25 years, the news provider stated.Using the long-hole stoping method, the mine produced almost 260,000 ounces of gold, contributing to 37 percent of ABG's total gold output.

It is also noticed that at Burnstone, since the method was adopted, operational efficiencies have improved significantly, with mechanized ore development increasing by 33 percent.

"Excellent progress has been made with long-hole stoping as the mining method, with the efficiency of the teams improving on a monthly basis," Great Basin Gold said in a recent statement

Long-hole stoping had been so effective in South African mining operations that one company who uses the method has been awarded a feasibility study, according to Mine Web.