

Prevention and Control of Accident in Open Cast Mines

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Abstract - In Present Study an effort has been made to carry out many causes of accident in o/c mining and their prevention and awareness is necessary. Thus, this study give a idea related to reduction of accident o/c mines. In this study we read how to accident happened in o/c mines and how to decrease accident in o/c mines.

Indexed terms: - Dump yard, explosive, Berm, Bench height, holes, Accident

I. INTRODUCTION

In o/c mines there are many types of accident happened. Some accidents are naturally occurring, and some are happened by human mistake. But whatever the reason of accident if we know how accident happened, then we are try to prevent the accident in o/c mines and we are work safely. In o/c mines there are many rules and regulations are made by DGMS for prevention and control of accidents but due to lack of knowledge and careless various accidents are happened in o/c mines.

II. SOME CAUSES OF ACCIDENT'S IN O/C MINES

A. Accident due to Machineries

There are lots of heavy machineries are used in o/c mines such as Shovel, Dragline, Truck, Dumper, Dozer, Scraper etc. it makes mining easy and cheap but cause accident in mines.



Fig-1 Accident due to Machineries [8]

Prevention during operating these machineries.

- Before moving the machineries (Truck, dumper etc) blow horn.
- Operators shall not drive the vehicle at an excessive speed.
- Ensure no persons are around the machine during operation in mines.
- Use Audio visual alarm when back the machineries.
- No any person sleep in the bottom of truck, dumper etc.
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B. Accident during steaming, Charging and Blasting holes.

Improper method , Pattern, and direction of making holes, Improper method of Steaming , Charging, blasting of holes causes accident in o/c mines. High explosion capacity of explosives are used in o/c mines for blasting materials. Their careless handling and use causes accident and death in mines.

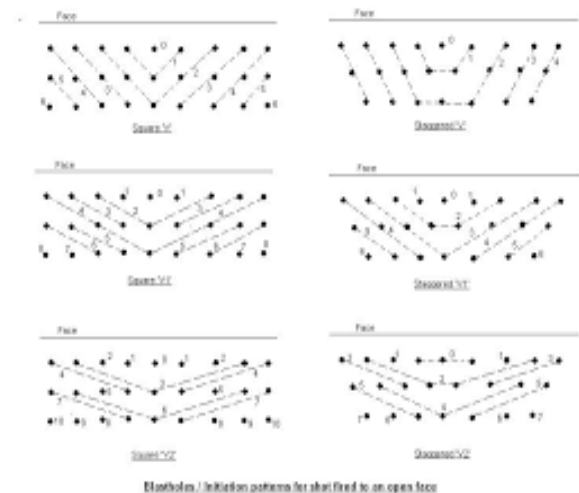


Fig-2 Blasting Patterns of holes[9]

Prevention during steaming, Charging and Blasting holes.

- Proper method, Pattern and direction should be used.
- Before charging check the crack in holes.
- Don't charge the crack holes.
- Check the temperature of the hole, if the temperature of the hole exceeds 80°C, it shall not be charged.
- Blasting operation shall be under direct supervision of an assistant manager/blasting officer.

C. Accident due to Fly rock.

Improper blasting cause Flyrock. Flyrock is a major problem of accident not only the works who work in mines but also people who live in near the mines and present during blasting time in mines.



Fig-3 Flyrock [10]

Prevention from Flyrock.

- Don't over charged the holes.
- Holes will be stemmed right upto the of the holes, but stemming length shall not be less than the burden.
- Boulders will not put into the drilled holes during stemmed the holes.
- Carefully choose the delay interval between different rows.
- Blasting is carryout by a trained person.

D. Accident due to O/B dump.

During dumping O/B there are many accident are happened in mines. Lots of death cases are recorded in O/B dump.



Fig-4 O/B dump [11]

Prevention during dumping O/B in O/B dump yard.

- O/b dump area shall be provided with a berm of height 1m or half the dumper wheel diameter.
- Don't dump o/b if any crack and sign of instability is found in dumping yard.
- If dumping area is slippery, it should be necessary to roughed the dumping area by blasting or ripping to a depth of 1-1.5m
- Don't store the water in dumping area.
- Dozer shall not be used for dozing o/b at base of dumping area

E. Accident due to improper knowledge of explosive and their handling.

How to explosive carryout in mines and how to handle is the main reason to prevent accident in mines because high power explosives are use in o/c mines and without proper handling and use it create major cause of accident in mines.



Fig-4 Blasting in O/c mines [12]

Prevention during blasting and handling of explosive.

- In o/c mines blasting operation is carryout by under supervision of an under manager, official person and the engineer of the explosive supply company.
- All blasting operation is carryout under the rule and regulation of DGMS.
- For safe blasting in O/c mines Slurry or emulsion explosive shall be used.
- Fire, Smoking, any any other fire generating device shall not use while blasting the holes.
- During Blasting the holes minimum number of people shall be present.

F. Accident due to Improper Supervision and Inspection

In Every place of mines where worker is coming and going and Every working place, a proper supervision and Inspection is necessary because without supervision and Inspection we can't Control accident in mines.

- Blasting operation shall be under direct supervision of an assistant manager/blasting officer.
- Before coming work truck, dumper , shovel, etc shall check or Inspect properly.
- Face and bench side shall be properly inspect.
- All working place and roadways shall be properly inspected by competent person.
- Supervision of Activities/Working of workers.

III. OTHER PROBLEMS RELATED TO O/C MINES.

O/c mines also Polluted Environment. Due to O/c mines workers and People who lived in near to the mines area are affected from dust generated from mines.

Some of the disease listed below happened due to o/c mines

- Pneumoconiosis
- Silicosis
- Diffuse Fibrosis
- Lung diseases
- Chronic obstructive Pulmonary diseases

IV. CONCLUSION

The Overall study give the conclusion is that the life of O/c miner is very difficult and without proper knowledge and prevention we can't stop and decrease the accidents in O/c mines. With the help of Proper Knowledge and Prevention we can Control the Accidents of O/c mines and make miner life and mining easy.

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