

BLASTING OPERATIONS IN BUILDING STONE QUARRIES

Blasting operations in building stone quarries covered under the purview of the mines act 1952 , by holder of shot firer certificate issued under the explosives rules 2008

LEGAL OBLIGATIONS

INDEX

- Whether the stone quarries comes under the mines act 1952.
- Jurisdiction of Explosive rules 2008 in conducting the blasting operations in the building stone quarries.
- Jurisdiction of the Mines Act 1952 in conducting the blasting operations in the building stone quarries.
- Who will conduct the blasting operations in building stone quarries as per the law ?
- What are the disadvantages of conducting the blasting operations by the shotfirers?




REASON FOR CHOOSING THIS TOPIC

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This paper deals with the Blasting operations in stone quarries in Karnataka state conducted by the shot firer's certificate holder issued from PESO. Stone quarrying is basically a labor oriented small scale industry which involves drilling, blasting and crushing activities. In Karnataka and in some parts of the rest of India,

In most of the cases, the mine owners are entering into agreements with explosive suppliers and conducting blasting operations at their mines by the holder of Shot Firer's Certificate issued from PESO. Whereas no such provision exist under the Mines Act, 1952, as such blaster/shot-firer is not reportable to the manager and is employed in more than one mine and is getting his wages/remuneration on the amount/quantity of work he is performing. Due to unscientific and unplanned blasting activities conducted in the mines by the in experienced persons resulting in fatal accidents and complaints from the neighboring residents has become a growing concern to the persons employed in and around the mines in general and regulatory authorities in particular. With the increase in the growing demand for the building stone, scale of quarrying operations have been increased by deploying sophisticated machinery, which necessitates the deep hole drilling and blasting conducted at the mine. Which is resulting in Fly rock, ground vibrations causing damage to the structures in the vicinity besides causing fatalities and injuries to the persons employed in the mines and the people residing nearby, if the Blasting operations are not conducted as required under the provisions of the Mines Act 1952



BLASTING OPERATIONS IN
BUILDING STONE
QUARRIES



To determine whether an operation falls under the Mines Act of 1952, we need to systematically evaluate-

1. The nature of operation against the definition, and
2. The provisions specified under Sec 3 of the Act.



What is a 'Mine'?

Section 2(1)(j) of The Mines Act, 1952 "Mine" means any excavation where any operation to search for or obtain minerals has been or is being carried on and includes –

1. All borings, boreholes, oil wells and accessory crude conditioning plants, including the pipe conveying mineral oil within the oilfields;

2. All shafts, in or adjacent to and belonging to a mine, where in the course of being sunk or not;

3. all levels and inclined planes in the course of being driven;

4. all OPEN CAST WORKINGS ;

5. all conveyors or aerial ropeways provided for the bringing into or removal from a mine of minerals or other articles or the removal of refuse from there;

6. All adits, levels, planes, machinery works, railways, tramways and sidings in or adjacent to and belonging to mine;

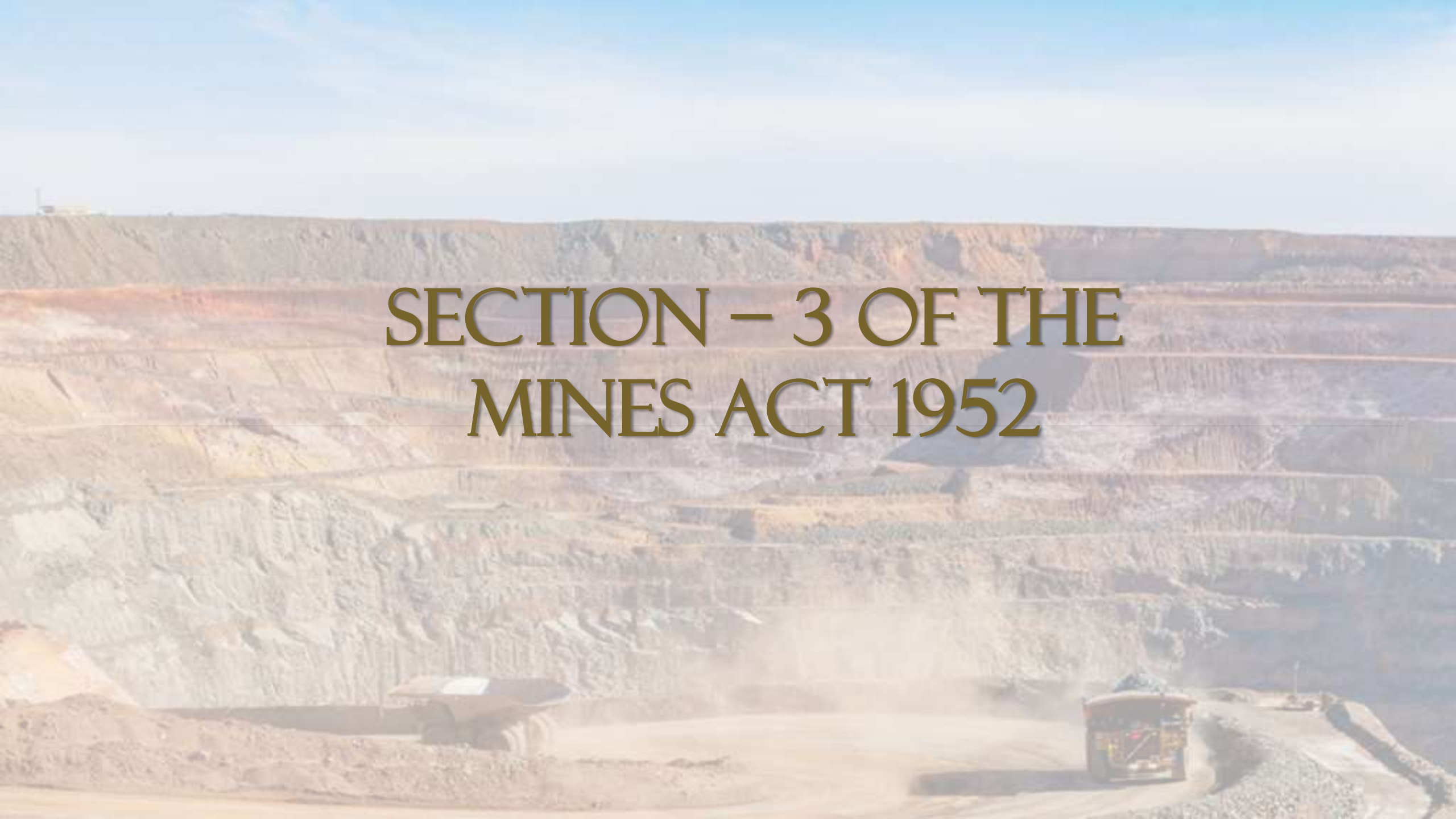
7. all protective works being carried out in or adjacent to a mine;

8. All workshops and stores situated within the precincts of a mine and the same management and used primarily for the purposes connected with that mine or several mines under the same management;

9. All power stations, transformer sub-stations, converter stations: rectifier stations and accumulator storage stations for supplying electricity solely or mainly to work the mine or several mines under the same management;

10. Any premises for the time being used for depositing sand or other material for use in a mine or for depositing refuse from a mine or in which any operations in connection with such and refuse or other material is being carried on, being premises exclusively occupied by the owner of the mine;

11. Any premises in or adjacent to and belonging to a mine or which any process ancillary to the getting, dressing operation for the sale of minerals or of coke is being carried on.

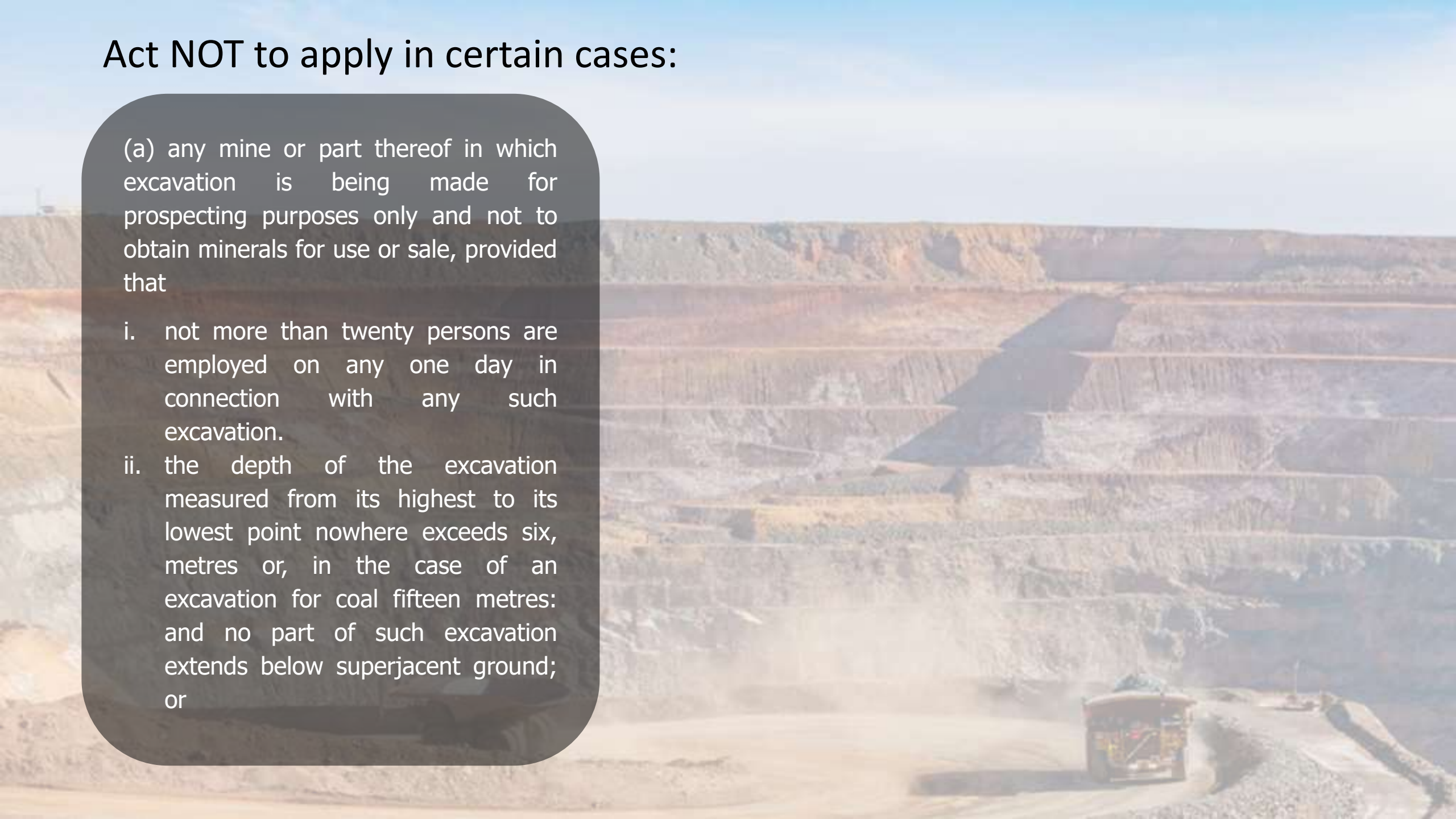
A wide-angle photograph of a massive open-pit mine. The mine is characterized by numerous horizontal terraced levels, creating a stepped appearance. The rock faces are a mix of light tan and greyish-brown. In the foreground, a large yellow haul truck is parked on a dirt road, and another piece of heavy machinery is visible further down. The sky is a clear, pale blue. The text "SECTION - 3 OF THE MINES ACT 1952" is overlaid in the center in a gold, serif font.

**SECTION - 3 OF THE
MINES ACT 1952**

Act NOT to apply in certain cases:

(a) any mine or part thereof in which excavation is being made for prospecting purposes only and not to obtain minerals for use or sale, provided that

- i. not more than twenty persons are employed on any one day in connection with any such excavation.
- ii. the depth of the excavation measured from its highest to its lowest point nowhere exceeds six metres or, in the case of an excavation for coal fifteen metres: and no part of such excavation extends below superjacent ground; or



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(b) any mine engaged in the extraction of kankar, murrum laterite, boulder, gravel, shingle, ordinary sand (excluding moulding sand, glass sand and other mineral sands), ordinary clay (excluding kaolin, china clay, white clay or fire clay), building stone, [slate,] road metal, earthy fullers earth, [marl chalk] and lime stone. Provided that –

- i. the working do not extend below superjacent ground: or
- ii. where it is an open cast working –
 - (a) the depth of the excavation measured from its highest to its lowest point nowhere exceeds six metres;
 - (b) the number of persons employed on any one day does not exceed fifty; and
 - (c) explosives are not used in connection with the excavation.



What is a 'mineral'?

Mineral means all substances which can be obtained from the earth by mining, digging, drilling, etc. but,

The definition of "mineral" under the Mines Act 1952 is designed to be broad and inclusive, covering all naturally occurring substances of economic value, from fossil fuels to industrial minerals and precious stones. This comprehensive definition ensures that all aspects of mineral extraction and processing are regulated

Building stone quarries come under the Jurisdiction of the Mines Act 1952:

1. Based on the detailed definition in Section 2(j) of the Mines Act, 1952,

- As it fit the definition of a "mine."

2. Based on Sec 3. of the Act, Building stone comes under the Mines Act 1952

- As it fulfil the requirements.

3. Definition of Opencast working

- They are a form of open-cast (surface) mining.



To determine whether an operation falls under the Mines Act of 1952, we need to systematically evaluate-

1. The nature of operation against the definition, and
2. The provisions specified under Sec 3 of the Act.

BLASTING OPERATIONS IN BUILDING STONE QUARRIES.

By the holder of Shot Firer's certificate
issued under Explosives 2008

What are the Statutory Obligations?

For which we have to see the jurisdiction of Explosive Rules 2008,
under the Explosives Act 1884 and the Metalliferous Mines
Regulations 1961 under the Mines Act 1952

Explosive Rules 2008

1. License for Manufacture of Explosives

- **Rule 101** : This license authorizes the manufacture of explosives in specified premises.

2. License for Storage of Explosives:

- **Rule: 107:** This license allows the storage of explosives in approved premises.

3. License for Possession and Sale of Explosives

- **Rule 121:** License for possession and sale of certain classes of explosives

Explosive Rules 2008

4. License for Possession for Use of Explosives (Class 2 and 3):

- **Rule 124** : This license permits individuals or entities to possess explosives for personal use.

5. License for Use of Explosives:

- **Rule: 129**: This license allows the use of explosives for specific purposes such as mining, construction, etc.

Licenses Issued by District Magistrate

1. License for Possession and Sale of Explosives (Class 2 and 3):

2. Rule: 121

- **Explanation:** This license authorizes the possession and sale of certain classes of explosives, typically in smaller quantities and for specific uses

1. License for Possession and Sale of Explosives (Class 2 and 3):

2. Rule: 123

- **Explanation:** This license permits individuals or entities to possess explosives for personal use, ensuring they adhere to safety regulations.

Various type of Licenses issued from PESO

- **Rule 113** of the Explosive Rules, 2008, outlines the various types of licenses (LE 1 to LE 30) issued for different activities involving explosives, for specific purposes, such as manufacturing, storage, sale, transport, use, import, and export of explosives.

Below is an explanation of each type of license:

Manufacture Licenses	LE-1: License to manufacture explosives in a factory.	Purpose: Authorizes the manufacture of all types of explosives within a factory premises
Storage License	LE-3: License to store explosives in a magazine	Purpose: Permits the storage of explosives in a magazine (a secure storage facility).
Possession and Sale Licenses	LE-7: License to possess and sell explosives (general).	Purpose: Allows the possession and sale of various explosives to authorized persons or entities.
	LE-9: License to possess and sell explosives for own use.	Purpose: For individuals or entities to possess explosives for their own use without reselling them.
	LE-10: License to use explosives for blasting.	Purpose: Authorizes the use of explosives for blasting operations in mining or construction.
	LE-11: License to use explosives in a quarry.	Purpose: Specifically for using explosives in quarrying activities.
Transport Licenses	LE-12: License to transport explosives by road.	Purpose: Permits the transport of explosives by road vehicles meeting safety standards

- Reg 154 (2) Explosives shall not be taken into or kept in any building except a magazine duly approved by the Licensing Authority under the Indian Explosives Act, 1884 :
- Hence manufacture, possession, sale, and transportation of explosives is governed by the Indian Explosive Act 1884, and the regulations rules (the Explosive Rules, 2008) framed there under which is administered by the Petroleum and Explosive Safety Organization (PESO), Ministry of Industry, Government of India.

USE OF EXPLOSIVES

Use of explosives in mines shall be in accordance with provisions laid down in Chapter XV (Explosives and Shotfiring) of the Metalliferous Mines Regulations, 1961 (the MMR, 1961).

Hence comes under the jurisdiction of the Mines Act 1952

1. Regulation 153 of the Metalliferous Mines Regulations, 1961

the explosives provided for use shall be of good quality and, as far as can be known, in good condition. No explosive shall be used in a mine except that provided by the owner, agent or manager.

2. Regulation 153 of the Metalliferous Mines Regulations, 1961

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No explosives shall be issued from the magazine or taken into any mine except in a case or container of substantial construction and securely locked. Cases or containers made of iron or steel shall be heavily galvanized; and no case or container provided for carrying detonators shall be constructed of metal or other conductive material. No detonator shall be kept in a case or container which contains other explosives, materials or tools; and two or more types of detonators shall not be kept in the same case or container.

Provided that nothing in this sub-regulation shall restrict the conveyance of primer cartridges fitted with detonators in the same case or container for use in a wet working or in a sinking shaft or winze.

No detonator shall be taken out from a case or container unless it is required for immediate use. No case or container shall contain more than five kilograms of explosives, and no person shall have in his possession at one time in any place more than one such case or container.

Provided that nothing in this sub-regulation shall prohibit the conveyance of larger quantity of explosives in bulk for supplying an underground magazine.

Provided further that the chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the carrying of a larger quantity of explosives in a single case or container, or the use, at one time in one place, of more than one such case or container.

Every case or container shall be numbered, and as far as practicable, the same case or container shall be issued to the same Blaster or competent person, as the case may be, every day. The key of every case or container shall be retained by the Blaster in his own possession throughout his shift.



Who will carry out the Blasting operations in Mines?

Reg 160. The preparation of charges and the charging and stemming of holes shall be carried out by or under the personal supervision of a competent person, in these regulations referred to as a 'blaster'. The blaster shall fire the shots himself.



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Reg (2)(6) “Blaster” means a person possessing a Manager’s, Foreman’s, Mate’s or Blaster’s Certificate and appointed by the manager in writing to perform the duties of a blaster under these regulations.

Reg 169. At the end shift : Blaster shall record, in a bound paged book kept for the purpose, the quantity or explosive taken, used and returned, the places where shots were fired and the number of shots fired by him, and misfires, if any. Every such entry shall be signed and dated by him.

EXPLOSIVE RULES 2008

Rule 97.

Blasting operations in mines.—Blasting operations in mines shall be carried out as per the Mines Act, 1952 and such operations shall be carried out according to regulations framed under that Act.

Rule 98.

Blasting operation by shot firer in areas other than mines.

CIRCULAR NO. R 4(2)99MHA/VI DATED 18.09.2015 OF CHIEF CONTROLLER OF EXPLOSIVES.

Point No.8. Blasting operations in mines shall be carried out as per the Mines Act 1952.

Point No.9. Blasting operations in the areas other than mines shall be carried out by a Shot firer holding valid certificate issued by PESO.

Point No.10. In no case a Shot Firer carry out blasting in mine area on the strength of certificate issued in Form LE-10 by PESO



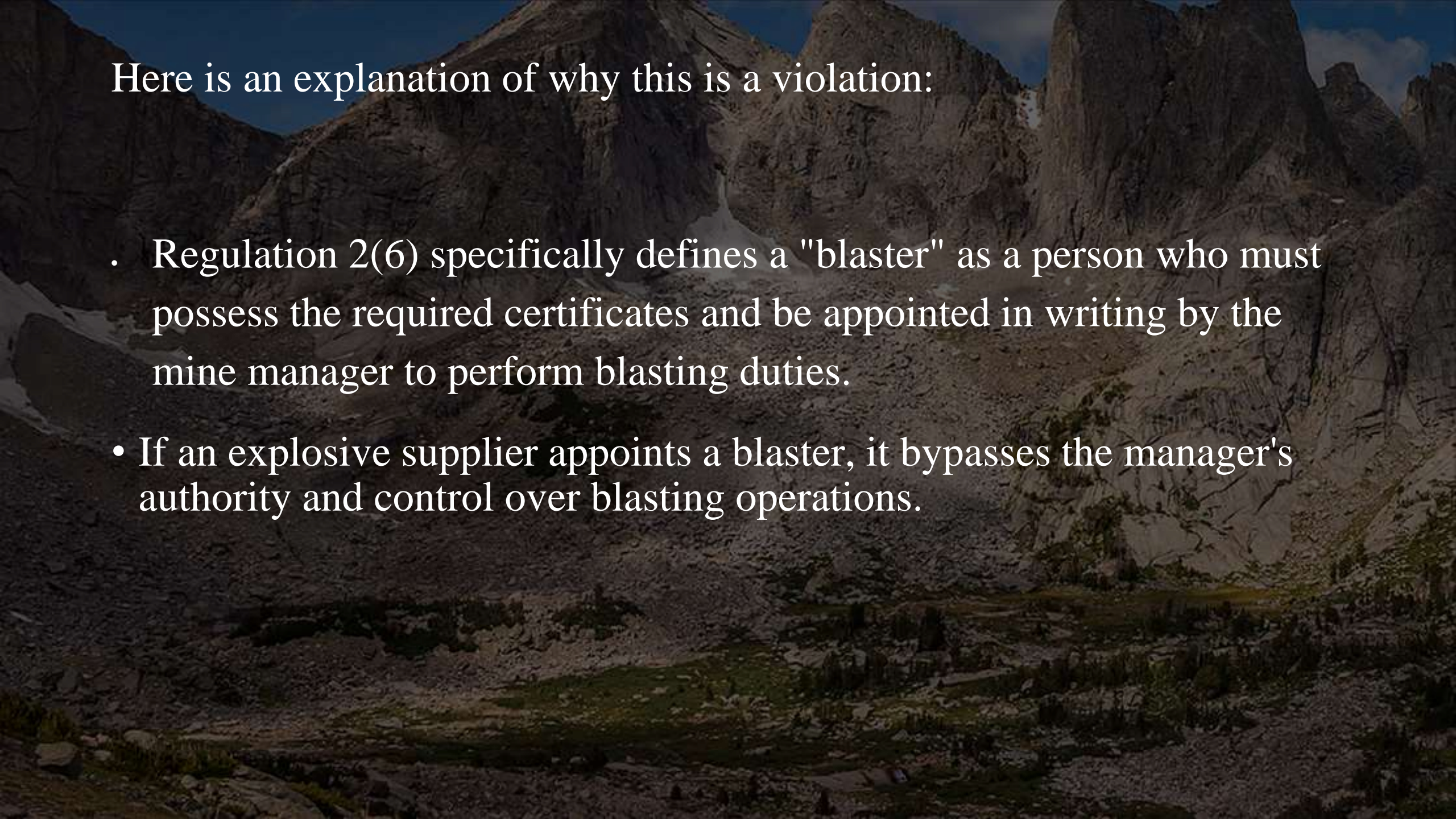
Rule 107. Shot firer shall perform the following categories of blasting, namely :

Class	Category	Type of Blasting Permitted
A	Unlimited	All types of blasting
B	General aboveground	All phases of aboveground Blasting operations
C	General underground	All phases of aboveground Blasting operations
D	Demolition	All phases of blasting in demolition projects
E	Seismic	All phases of blasting in seismic prospecting or production
F	Agricultural	All phases of blasting in agricultural and well sinking
G	Special	Blasting for special purpose not covered under the above category



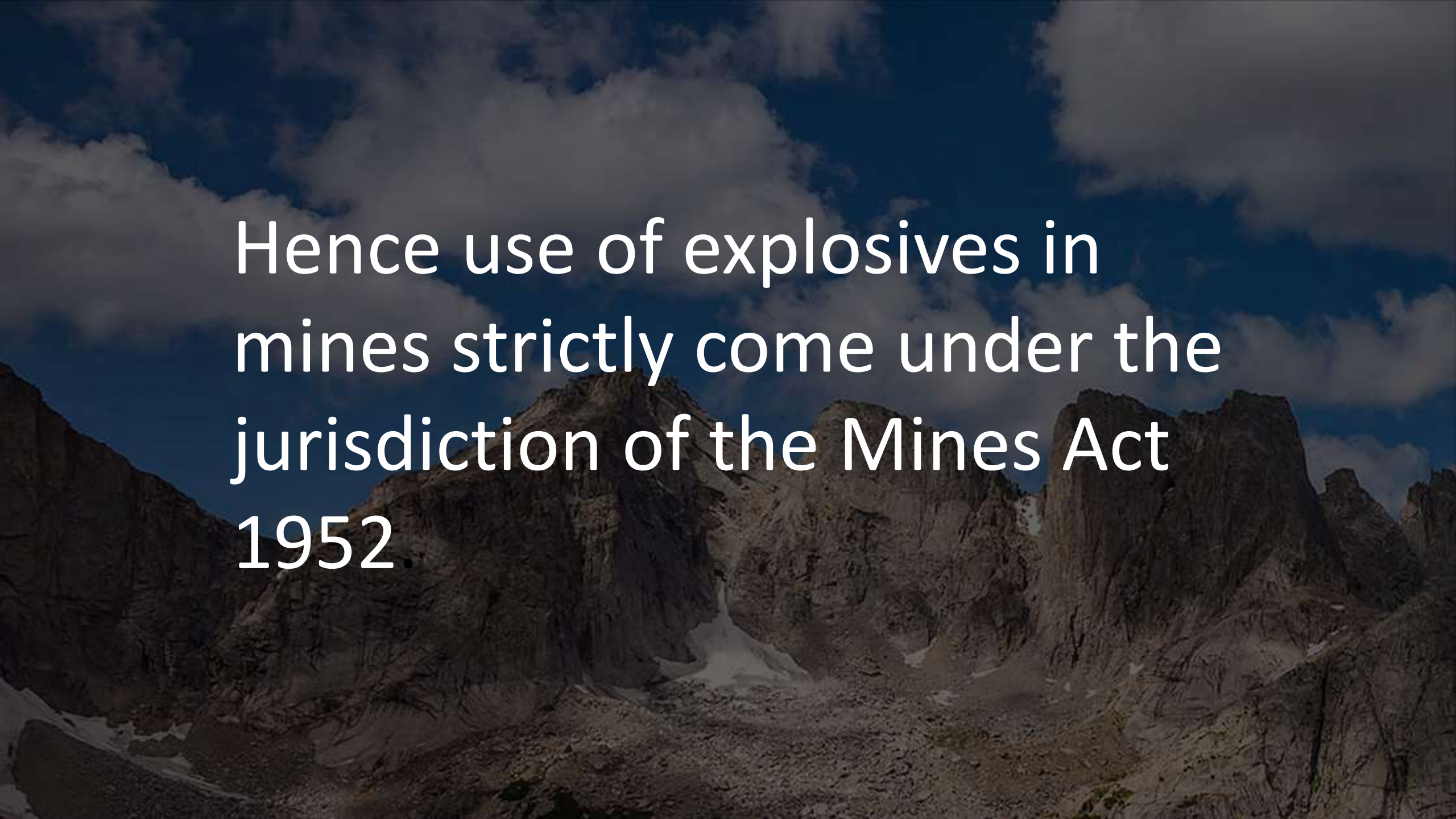
Blasting operations conducted by Foreman/Mate/Blaster appointed by the Explosive supplier :

- On few occasions it was observed that Blasting operations in more than one quarry, were conducted by Foreman/Mate/Blaster appointed by the Explosive supplier.
- It is a violation under the Metalliferous Mines Regulations (MMR), 1961.
- According to MMR, 1961, a blaster must be appointed by the manager of the mine.
- Regulation 2(6) specifically defines a "blaster" as a person who must possess the required certificates and be appointed in writing by the mine manager to perform blasting duties.
- If an explosive supplier appoints a blaster, it bypasses the manager's authority and control over blasting operations.

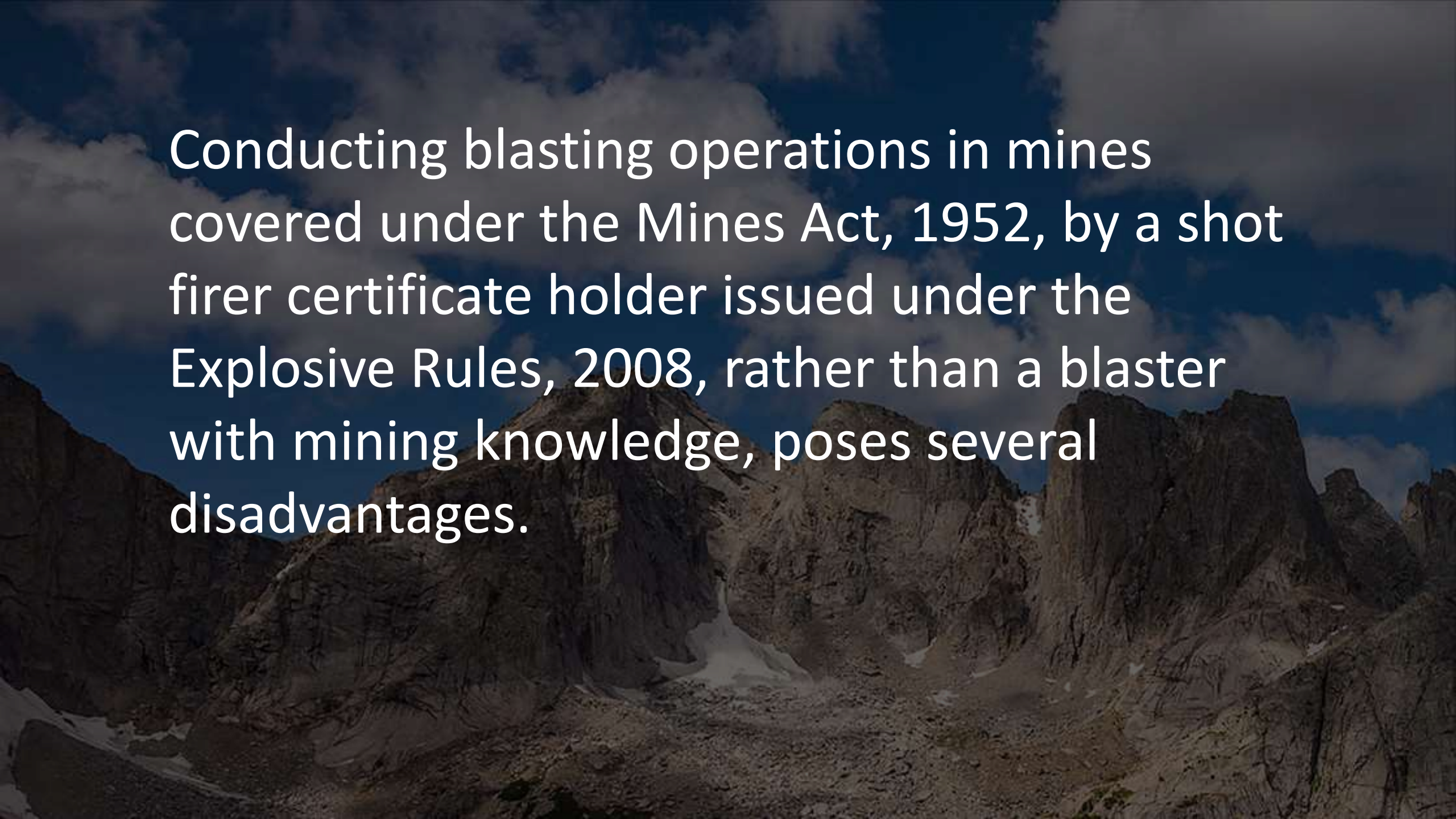


Here is an explanation of why this is a violation:

- Regulation 2(6) specifically defines a "blaster" as a person who must possess the required certificates and be appointed in writing by the mine manager to perform blasting duties.
- If an explosive supplier appoints a blaster, it bypasses the manager's authority and control over blasting operations.



Hence use of explosives in mines strictly come under the jurisdiction of the Mines Act 1952.



Conducting blasting operations in mines covered under the Mines Act, 1952, by a shot firer certificate holder issued under the Explosive Rules, 2008, rather than a blaster with mining knowledge, poses several disadvantages.

Disadvantages of conducting blasting operations by Shotfirer of PESO

Shot firer under Explosive Rules 2008 Vs Blaster under Metalliferous Mines Regulations		
	Shot firer	Blaster
Context and Application	<ul style="list-style-type: none"> Primarily trained in the safe use of explosives across various industries. Their knowledge is broader but less specialized in mining. 	<ul style="list-style-type: none"> Specialized training focused on the mining industry. Their knowledge is tailored to the specific needs and challenges of mining operations.
Safety and Regulatory Compliance	<ul style="list-style-type: none"> Knowledge of the provisions of the Explosive Rules 2008 for safe handling and transport of explosives 	<ul style="list-style-type: none"> Knowledge of the provisions of the Regulations and SOP framed for safe handling and use of the explosives and in-depth knowledge of Mining operations and geological disturbances to conduct the blasting operations to ensure safety of the persons employed in the mines.
Technical Expertise	<ul style="list-style-type: none"> Proficient only in General blasting techniques suitable for diverse applications. 	<ul style="list-style-type: none"> Expert in advanced blasting techniques optimized for mining, including consideration of geological factors and mining methods.
Efficiency and cost effectiveness:	<ul style="list-style-type: none"> shot firer, without having the knowledge of the provisions of the Metalliferous Mines Regulations 1961, and SOP framed with Inadequate training can result in inefficient blasts, leading to higher operational costs and reduced productivity, mining operations, formation of strata, he cannot plan for optimized blasting 	<ul style="list-style-type: none"> Blaster with the knowledge of provisions of the regulations and SOP and acquainted with the mining operations can plan for optimizing the blasting operations to increase the output and to decrease the waste

Safety Risks

Blasting is a hazardous activity that necessitates strict adherence to the provisions of the Mines Act, 1952 (MMR 1961), particularly when conducted by a blaster appointed in writing by the manager. However, if blasting operations are conducted by a shot firer, there is a risk of regulatory lapses. Such lapses can lead to fatal accidents and serious incidents, as well as complaints from nearby residents concerning issues like fly rock and ground vibrations originating from the blasting site

List of Mines in Bellary Region No. 2

SL No.	District	No. of leases granted from the Department of Mines & Geology	No. of Registered Mines in DGMS, Ballari Region No.2
1	Bagalkot	196	92
2	Belgaum	298	160
3	Gadag	65	38
4	Haveri	65	56
5	Koppal	318	141
6	Dharwad	141	17
7	Uttar Kannada	20	26
8	Vijayapura (Bijapur)	107	13
Total		1210	543



THANK YOU