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BLASTING RELATED LITIGATION : FACTS, LEGAL POSITION & WAYS OF MITIGATION METHODS

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ABSTRACT

Blasting is the most essential part of Mining and Civil Engineering and often the cause of most of disputes with the neighbours as the blasting produces Unwanted Ground Vibrations, sound etc. And is often blamed for the damage of the neighbouring properties.

Alternates to blasting such as ripping, cutting etc, are used at a few places but have their own limitations. Thus Rock Blasting has no substitute. It's the cheapest and fastest Rock Breaking technique and the only technique capable of producing huge volumes as demanded by today's business needs.

Higher volumes of productions necessitate higher volumes of use of explosives. Making it more susceptible to claims and litigation.

As the Mining & Civil Engineering industry expands and so also the villages and cities, explosives users need to find the ways to insulate themselves against spurious claims and vexation litigation.

The legal position elucidates the tortious and regulatory liability of the mine owner. The object of the regulations is to ensure a fair balance between the right of the mine owner and the right to life and liberty of the persons as guaranteed by the Constitution of India.

This paper discusses the facts, legal position and mitigation methods of such claims and litigations.

1.0 INTRODUCTION

Use of explosives/blasting is still a necessity for mining. Though many alternates to explosives have been

tried and tested as depicted in the figure below, there is no substitute for blasting at least in the foreseeable future.

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2.0 BLASTING ALTERNATE FIGURE

Trends in Explosives consumption in India

As the Indian Economy is growing, so is the use of explosives, which grew around 60% folds in the 7 years ending with 2014-15

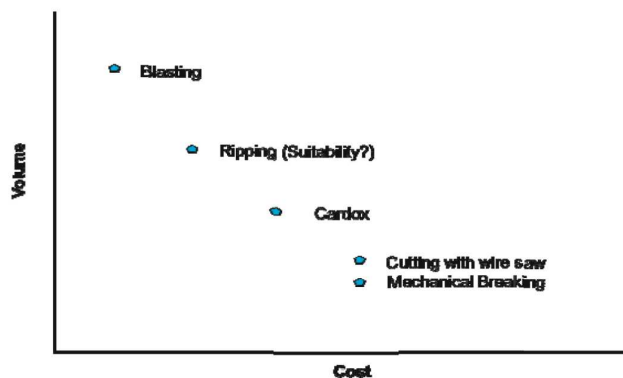


Figure 1

3.0 COMMERCIAL EXPLOSIVES MANUFACTURED IN INDIA

Sl. No.	Explosives	Class	Quantity Metric Tonnes, Million Mtrs, Million Nos.						
			2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
1	Gun Powder	1 Div.0	909	827	689	711	578	549	535
2	Nitrate Mixture	2 Div.0	254808	225615	183534	238193	267276	269999	344146
3	SME	2 Div.0	343019	374524	359944	483821	495946	519878	604234
4	PETN+Cast Booster	3 Div.2	3206	4449	3574	5063	5657	6186	7015
5	Safety Fuse	6 Div.1	132	123	8	81	77	74	69
6	Detonating Fuse	6 Div.2	334	394	285	371	635	427	458
7	Detonators (all Kind)	6 Div.3	610	697	724	971	992	1031	907
8	Micro Cord	7 Div.3				0.18	122165	106261	209109
9	ANFO		26310	15301					

Mineral Production Trends

Year average Production of Limestone and number of Mines is as below

Table No.1 Production of Limestone 2003-04 to 2012-13

Year	Quantity (Lakh tonnes)	Value(Rs. Crore)	No. of Mines	Labour Employed (Av. Daily)
2003-04	1534	1594	552	20696
2004-05	1658	1794	600	19453
2005-06	1700	1906	550	18164
2006-07	1967	2405	583	18758
2007-08	1931	2400	553	17865
2008-09	2216	2922	601	19446
2009-10	2330	3248	565	21006
2010-11	2463	3635	592	20031
2011-12	2626	4077	716	23058
2012-13(P)	2797	4322	723	22615

The average size of the mines is also growing as the manufacturing and Mining Capacities are matching Global Scales. As can be seen from the above table the production of the mine till 2003-04 was 2.78 Lakh Tons. Increased production of 1263 Lakh Tons during the same period was contributed by 171 mines producing an average of 7.4 Lakh Tons.

Table No.2 Production of Iron Ore 2003-04 to 2012-13

Year	Quantity (Lakh tonnes)	Value (Rs. Crore)	No. of Mines	Labour Employed (Av. Daily)
2003-04	1228	4650	266	36124
2004-05	1459	7403	281	37091
2005-06	1652	10804	284	39450
2006-07	1877	14204	290	39341
2007-08	2133	23379	314	46056
2008-09	2130	28544	328	42702
2009-10	2186	26462	320	43557
2010-11	2072	39614	336	46183
2011-12	1686	38357	313	46752
2012-13(P)	1360	33227	270	39617

The average size of the mines is also growing as the manufacturing and Mining Capacities are matching Global Scales. As can be seen from the above table the production of the mine till 2003-04 was 4.62 Lakh Tons. Increased production of 958 Lakh Tons during the same period was contributed by 70 mines producing an average of 13.70 Lakh Tons

Effects of Use of Explosives.

As the mines are expanding so are the villages and cities.

Increased awareness of their rights and demand for increased comfort levels have further compounded the problems of Mine Operators.

Use of Explosives results in

1. Ground Vibrations
2. Sound

3. Dust
4. Nitrous Fumes

Out of the above the last two i.e. Dust and Nitrous Fumes have local effect and seldom attract complaints on a large scale. Even if there are some complaints they are easy to overcome by the following means

Nitrous Fumes: Better composition of Explosives.

Dust: By exploiting the wind direction and Keeping the Blast Surface dust free.

Ground Vibrations and Sound are two aspects that attract the most complaints and results in litigation.

Ground Vibrations and sound at lower levels are not harmful but are a nuisance. At higher levels they are damaging.

4.0 EFFECTS OF SOUND

Sound

The following table illustrates some common sounds and their intensity.

Table 3

Approximate Decibel Level	Examples
0 dB	The quietest sound you can hear
30 dB	Whisper, quiet library
60 dB	Normal conversation, sewing machine, typewriter
90 dB	Lawnmower, shop tools, truck traffic; 8 hours per day is the maximum exposure (protects 90% of people)
100 dB	Chainsaw, pneumatic drill, snowmobile; 2 hours per day is the maximum exposure without protection
115 dB	Sandblasting, loud rock concert, auto horn; 15 minutes per day is the maximum exposure without protection.
140 dB	Gun muzzle blast, jet engine; noise causes pain and even brief exposure injures unprotected ears, maximum allowed noise with hearing protector.

Non-Occupational Noise

Non-occupational noises are also regularly encountered during recreational activities and are sources of premature hearing reduction. Peak noise levels, in dB, are provided in the following table taken from Smith et al, 1999.

Table 4

Noise	Level
Firecracker	180
Gunshot	167
Car Stereo	154
Children's toys	150
Sporting events	127
Rock Concert	120
Health club	120
Motorboats	115
Video Arcade	110
Snowmobile	99
Movie	94

5.0 EFFECTS OF GROUND VIBRATIONS

An effect of Ground vibrations on Structures and human beings is a well-researched topic that resulted in every country formulating its acceptable limits.

In Indian DGMS (Director General of Mines Safety) vide his Technical circular No.7 of 1997 prescribed the following limits.

Permissible Peak Particle Velocity (PPV) at the foundation level of structures in the mining areas in mm/sec

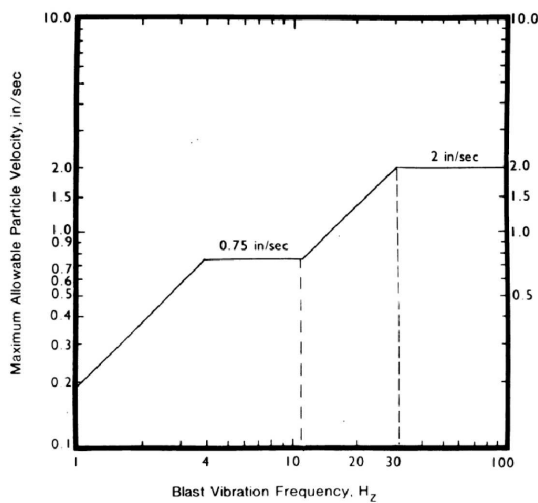
Table - 5

TYPE OF STRUCTURES	DOMINANT EXCITATION FREQUENCY		
	< 8 Hz	8 - 25 Hz	> 25 Hz
A) Buildings/structures not belonging to the owner.			
Domestic Houses/ Structures (Kacha, Brick and Cement).	5	10	15
Industrial buildings (RCC and Framed Structure).	10	20	25
Objects of Historical Importance and Sensitive structures.	2	5	10
B) Buildings belonging to the owner with limited span of life.			
Domestic Houses / Structures (Kacha, Brick and Cement).	10	15	20
Industrial buildings (RCC and Framed Structure).	15	25	50

The Following are the limits prescribed by OSHA (Occupational Health & Safety Authority) of USA

US Standards FOR SOUND

Lower frequency limit of measuring system, in Hz (+/- 3 dB)	Maximum level, in dB
0.1 Hz or lower - flat response ¹	134 peak
2 Hz or lower - flat response	133 peak
6 Hz or lower - flat response	129 peak
C-weighted - slow response ¹	105 peak dB



LEGAL ISSUES

Most of the blasting related litigation and claims occur as some mines don't exercise enough caution and take the neighbourhood into confidence. Another reason is the human tendency to gather the information suiting the already made decision. In this case without bothering OR checking the about the previous conditions of the structure, people find the cracks and crevices and claim them as blasting damages.

Such issue escalate and take the shape of political and social issues and become difficult to tackle as tempers run high.

In most of the cases, the Mine Management claims that the Vibrations and sound as measured at by them in their premises is within the prescribed limits, a claim vehemently disputed by the other party.

These developments further complicate the matters as the bureaucracy and safety authorities, most of the times, though being aware of the realities; can't openly defend the Mine Operator.

So are the courts.

In the USA which is a highly litigant country, every blaster (Mining or construction company undertaking blasting) insures him/itself against the blasting damage claims by

I. Buying an Insurance

- II. Documenting the existing conditions of the Building in the area that is likely to be affected by the Blasting and Existing Crack Recorded before Blasting (A potential source of Damage Claim) known as preblast survey.
- III. Continuous Sound and Ground Vibration monitoring by a third Party, who acts as an independent witness in case of a dispute involving blasting damage.

In case of dispute documents maintained vide II and III above help the courts and the Blaster in

- A. Assessing the truth
- B. Adjudicating the claim
- C. Decide on the amount of Compensation to the victim or
- D. Impose penalty for vexation litigation.

In India Blasting related claims are just emerging, in case no. W.P.No.26755 of 2007 in the High court of Andhra Pradesh, The court upheld the contentions of the appellants and imposed a stay on Rock Blasting and instructed the collector to relook into the matter of granting permission for Rock Blasting.

In India the liability of the leaseholder of the mine in the case of a damage caused due to the blasting operation is vicarious one and the standard is of absolute liability in law, and the same does not admit to any exceptions or defences. However, the Supreme Court in the case of M.C. Mehta v. Union of India (Oleum Gas Leak Case), had laid down limited and strictly five exceptions to the liability i.e. Plaintiff's (claimants) own mistake, Plaintiff's (claimants) consent, natural disasters, third party's mistake beyond the control of the defendant, part of a statutory duty. Meaning it's the responsibility of lease holder to prove that there could have not been any damage due to blasting or the plaintiff (claimant) failed to cooperate damage mitigation measures and or the damage is of claimants own making. Even if the cause is Natural disasters or third party's mistakes beyond the control of the leaseholder, the burden of proving such lies on the leaseholder. Part of statutory duty can't result in blast damage.

While the safety and security of the persons situated in the vicinity of the mine is important, carrying out legal business manner is also a fundamental right of every individual and corporate as per the Article 19 (1) (g) of the constitution. The Court of Law may tend to proceed on the basis that the livelihood or the right to live of the persons situated within the vicinity of the mine is paramount; the only protection against the blasting related claims is to have enough evidence to substantiate that the blasting operations could not have caused any damage. In such case though the suit is between unequal's the burden of proof shifts to the claimants.

Hence the only legal remedy that Leaseholder has is to be cautious and go for pre-emptive documentation against the future claims.

It could be by carrying out scientific analysis of the blast before commencement of blasting, during blasting and assessing its impact on the surroundings thereafter. As a matter of good faith, the findings of such scientific analysis or report ought to be shared with the State Government, if the mine is a minor mineral or the Central Government, if the mine is a major mineral. It is also imperative that the report of the scientific analysis ought to be given wide publicity by publishing in the newspapers and inviting objections from the stakeholders in the vicinity of the mine in respect of any objections or prospective loss that they may suffer in the event the blasting operation is carried out. The mine owner should obtain a report of the surveyor in respect of the external features of the household in the vicinity of the blast area. This would ensure that any future claims in respect of damage to external features of the household after the blasting operation could be avoided. With intimation or support of the Appropriate Government or the consent of the household within the radius of the blasting operation, the surveyor ought to survey the internal household by ensuring that the privacy of the household is not disturbed and also any photography or video obtained shall be strictly maintained as confidential and shall be destroyed after a reasonable time after the blasting operation.

The actual results of the blasting operation and the impact at the moment of the blast could be recorded and

shared with the Appropriate Government depending upon the nature of the mine. Immediately, after the blast, the household in the vicinity of the blast be surveyed again and the external markings report is obtained from the surveyor. The mine owner shall also allow any claims to be made from the residents of the household within a reasonable time in respect of the damages caused owing to the blasting operation.

After complying with the aforementioned conditions, it is important that the mine owner shall issue a public notice that no claims after the expiry of the reasonable time mentioned in the notice shall be entertained from the persons or household affected by the blasting operation.

The aforementioned steps would enable a mine owner to evade claims of negligence and the report of the surveyor, public notice goes to ensure that there is transparency and fairness in dealing with the blasting operations vis-à-vis the affected parties and claims from third parties and other external pressures. However, it's imperative that the Appropriate Government is also kept informed at all stages of the blasting operation, so as to evade any future regulatory hassles. For the purposes of the same, it would be appropriate for the mine owner to make appropriate requests to the Appropriate Government to formulate a comprehensive policy in regard to the blasting operations.

6.0 CONCLUSION

Blasting related claims and litigation are bound to increase with the increasing sizes of the mines and construction projects and increasing awareness amongst the citizens.

Explosives users in the countries where blasting related damage claims is in nascent stage have to find out the ways to insulate themselves against such claims. With the government thinking of allowing class action suits, the liability could be huge.

Explosives users could take the help of prescribed circulars by the regulatory authorities, constitutional provisions and the experience of the western countries in this regards.

With the above it should be possible to safely mine huge reserved that is locked up or likely to be locked up due to resistance from the local inhabitants. The above process ensures that the Mining Company's prospers by taking local community and the government into confidence in a transparent and legally tenable manner.

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