Revision of Threshold Value of Minerals Workshop

By

Indian Bureau of Mines

30th Oct 2017, Nagpur

Inputs by

National Council for Cement and Building Materials

Ballabgarh

Broad Chemical Specification of Cement Grade ROM Limestone

Guidelines for Broad Chemical Specification of Cement Grade ROM limestone brought out by NCCBM considering technological parameters as well as fuel conditions, in consultation with all the stake holder is well adopted by the industry as well as others.

Acceptable	Limiting Values for Blending
CaO% 44%-52%	Min 40%
MgO% 3.5% Max	Max 5.0%
SiO2% Al2O3% Fe2O3% to Satisfy the LSF,Ms,Ma	SiO2 <18% Max (Practiced) Al2O3 <3.5% Max (Practiced) Fe2O3 <3.0% Max (Practiced)
SO3% <0.6	<0.8%
Alkalies <0.6%	<1.0%
Cl <0.015%	<0.05%

Interpretation of threshold value

- In absence if “Either” & “Or” criteria, the threshold value for limestone prescribed by the IBM are arbitrarily used in defining the limestone usable

  - It is observed that :

  - one value is picked / fixed in defining the limestone Usable

  Examples :

  (i) Limestone Block contains CaO% 40.48% while SiO2% is 19.17% . 174.45Milion Tonnes, Case Rajasthan

  (ii) Limestone reserves table with nicely arranged on ranges of CaO % – >30-35, >35-38, >38-40,>40-42,>42-44,>44-51 total 205.25 million tonnes, Case Andhra Pradesh.

  No associated values for SiO2% ranges are given. Case Andhra Pradesh.

  (iii) Many Blocks put up for auction are merely described as Cement Grade, Blendable grade, Blendable / Beneficiable 155.0 Million Tonnes , Case Chhattisgarh.

Revision of Threshold Values for Limestone

- The threshold limit can be considered for revision on “EITHER” “OR” criteria (considering all blending, beneficiation etc. parameters)
- CaO% 38 Min, **or**
- SiO2% 18 Max, **or**
- MgO% 5 Max, **or**
- Alkalies (R2O) 0.5 Max

Benefits

- There is a very high possibility of beneficiating limestone on large scale, for ROM grade of 38% CaO and 18% SiO2 by dry method and make it usable. As compared to CaO - 34% to 35%.

- Recently beneficiation study by Screening was carried out at NCCBM with Limestone having following grade:

  Feed : CaO-38.91, SiO2-18.55, MgO-3.85, Al2O3-3.28, Fe2O3-1.52

  Out put: CaO-42.56, SiO2-15.00,MgO-3.14,Al2O3-1.57, Fe2O3-0.94

  (wt.%Rec : 86..67%, only feasible in dry season)

- This grade is again blendable.

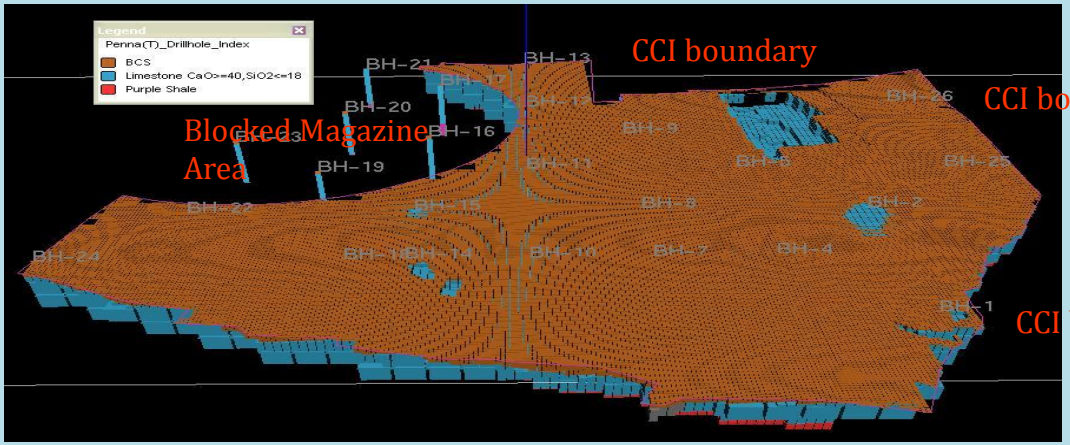
Benefits

Better compliance of the threshold values

- Better acceptability of auction able blocks.
- Better Utilization and management of resources.
- Less burden on fuel.
- Reduced financial burden due to inclusion of non usable low grade during bidding.
- Natural Mineral resources are non renewable scenario may change at the turn of this century when cement capacity building can only be possible with the use of low / marginal quality limestone. Stack sub grade mineral separately.
- Separate Grade wise better manageable Dumps by the user for mines reject for own or for future use.
    - CaO% >38 - <40
    - CaO% >34or35 - <38

ThankYou

Blockage of Reserves due to Magazine safety area – Case 1



The UPL including the magazine area admeasures approx. 2.10 sq. km as compared to UPL excluding magazine safety area of approx 1.62 sq. km **loss of 0.48 sq. km.**

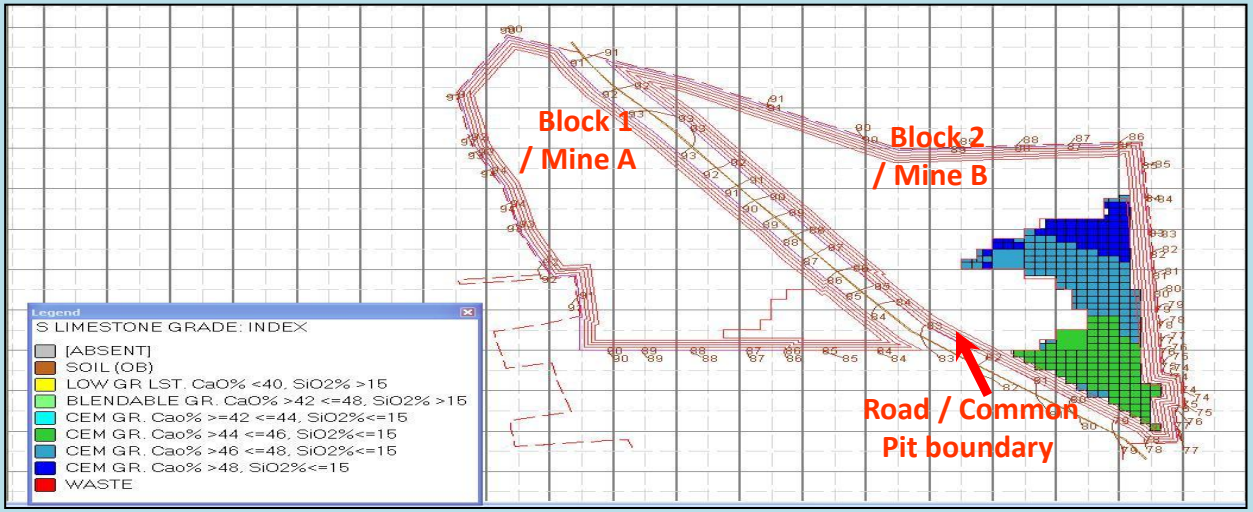
Comparisons of reserves and quality of Ogipur limestone deposit including & excluding magazine area

Rock Type	Reserves Including Magazine area			Reserves excluding Magazine area		
	Reserves (Tonnes)	Average Quality		Reserves (Tonnes)	Average Quality	
		CaO%	SiO_2%		CaO%	SiO_2%
Black Cotton Soil	4,305385.36	-	-	3,202897.31	-	-
Limestone	109,510474.57	47.88	9.01	80,241445.23	47.86	8.93
Purple Shale	4217752.53	35.18	25.93	4046444.59	35.21	25.88

Loss in reserves is 29.27 MT

Blockage of Reserves due to Road/ Common boundary

Case -2



Comparisons of reserves and quality of Block with and without road /common boundary

ROCK TYPE	Block without road/common boundary			Block 1 & 2 with Road /common boundary		
	RESERVES (TONNES)	Average Quality		RESERVES (TONNES)	Average Quality	
		CaO%	SiO_2%		CaO%	SiO_2%
Black Cotton Soil	8,393583.27	13.45	42.20	7,407314.48	13.41	42.59
Calcareous Clay	6,992746.52	26.76	31.19	6,519396.87	26.63	31.58
Dark and light grey limestone	319,936148.98	47.74	11.68	259,288766.75	47.66	11.70

Difference in reserves is 60.17 MT for 72m thick deposit