EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

Aditya Birla Group is India's second largest business house, with turnover of over Rs 141billion, is in the league of Fortune 500. The Group operates in 25 countries in Cement, Aluminum, Fertilizers, Viscose Staple Fiber, Textiles, Petroleum Refining, Power, Telecommunications, Industrial, Chemicals and Financial Services.

Cement manufacturing is core business of the Group and contributes to about 50% of the Groups turnover.

The applicant M/s. UltraTech Cement Limited (Formerly Grasim Cement) is a flagship company of Aditya Birla Group. UltraTech Cement is presently having one of its cement manufacturing unit along with Captive Power Plant at Village Rawan, Tehsil Simga, District Raipur, Chhattisgarh. UTCL has proposed expansion of this existing cement plant. It is also proposing a new Cement Plant (Clinker 3.5 MTPA) at village Sarkipar, Pipirahi & Semardih, Tehsil Balodabazar, District Baloda Bazar, C.G.

In order to cater the limestone requirement for the proposed new Cement Plant & expansion in the existing unit at Rawan, UTCL is proposing this new limestone mine over an area of 251.527 ha. with Production Capacity of 5.0 MTPA at village Kukurdih, District Baloda Bazar, Chhattisgarh.

As per EIA Notification dated 14th September 2006, as amended on 1st December, 2009, the project falls under **S. No. '1'** (Mining of Minerals), Project or **Activity '1(a) - (3)', Category "A"** and therefore requires Environmental Clearance from MoEF, New Delhi.

1.2 DETAILS OF THE PROJECT

Table 1

S. No.	Particulars	Details
A.	**Nature of project**	**Mining Project**
B.	**Size of project**	
1.	Mining Lease area	251.527 ha. {Govt. Land –3.679 ha., Private Land – 247.848 ha)
2.	Proposed Production capacity	5.0 MTPA
C.	**Project Location**	
1.	Village	Kukurdih
2.	Taluka	Baloda Bazar
3.	District	Baloda Bazar
4.	State	Chhattisgarh
5.	Latitude	21^0 38' 55.57"N to 21^0 39' 51.24" N

6.	Longitude	82^0 04' 52.14" E to 82^0 06' 17.26"E
7.	Toposheet No.	64 K/2
D.	**Environmental Settings Details**	
1.	Nearest Village	Kukurdih (~0.4 km in SE)
2.	Nearest City	Baloda Bazar (~5.5 km in East)
3.	Nearest National Highway	NH – 200 (Raipur to Bilaspur) (~ 27 km from the proposed mine site in WNW direction)
4.	Nearest Railway Station	Bhatapara Railway Station (~ 18.0 km in NW)
5.	Nearest Airport	Raipur (~ 63 km in SW direction)
6.	Ecological Sensitive Areas (National Park, Wild Life Sanctuaries, Biosphere Reserves etc.)	None within 10 km radius of the proposed mine site
7.	Reserved / Protected Forest within 10km radius	❖ Dabadih R.F. (~2.5 km in South) ❖ Mohtara R.F. (~ 9.0 km in NE) ❖ Sonbarsa & Latwa R.F. (~5.0 km in NE direction)
8.	Surface Water bodies	❖ Mahanadi Canal (~ 0.5 km in NNW) ❖ Kukurdih Talao / Pond (0.2 km in SE) ❖ Khorsi Nallah (~7.0 km in ESE) ❖ Jamuniya Nadi (~ 9.0 km in NW) ❖ Banjari Nallah (~4.6 km in West)
9.	Seismic Zone	Zone – II [as per IS 1893 (Part-I): 2002]
E.	**Cost Details**	
1.	Total Project Cost	Rs. 150 Crores
2.	Cost for Environmental Protection Measures	Capital Cost - Rs. 50 lakh
F.	**Requirements**	
1.	Water requirement	215 KLD Source - Ground water & mine sump water
2.	Manpower requirement	129 persons

1.3 MINING LEASE STATUS

The total Mining Lease (ML) area of Kukurdih Mine is 251.527 hectare. Letter of Intent has been granted initially in the name of Grasim Industries Ltd. (GIL) by Mineral Resource Department of Chhattisgarh, Raipur vide their letter no. dated 13.11.2007.

Now, the Name of the company has been changed from Grasim Industries Ltd. to M/s. UltraTech Cement Ltd., Raipur due to de-merger of entire cement business from Grasim Industries Ltd. and merger of the same in UltraTech Cement. Therefore, the Government of

Chhattisgarh has issued an **official order** regarding the change of the name of Kukurdih ML from Grasim to M/s. UltraTech Cement Ltd. Vide its letter No. F 2-3/2007/12 dated 4.10.2010

1.3.1 MINING DETAILS

Table 2

S. No.	PARTICULARS	DETAILS
1.	Mining Method	Opencast fully mechanized
2.	Mineable Reserves	96.01 million tones
3.	Life of Mine	18 years
4.	Proposed Production per year	5.0 MTPA
5.	Bench Height & Width	Height - 6 m to 10 m, Width – more than 30 m (working bench)
6.	Elevation Range	257 m RL to 272 m RL
7.	General Ground Level	265 mRL
8.	Ground Water Table	Pre Monsoon – 7 to 12m (258 to 253mrl) Post monsoon – 5 to 8m (260 to 257mrl)
9.	Ultimate Working Depth (for the end of life of mine)	25 m bgl (240 mRL)
10.	Overall Pit Slope	45^0
11.	Stripping ratio	1:0.12
12.	Number of Working Days	275 days
13.	Number shifts per day	3
14.	Total waste generation at end of life of mine	• Top soil – 9.22 Mm^3 • Interburden / Waste rock –11.9 Mm^3 loose taking 35 % expansion after breaking • Mineral Reject/losses – 10% of ROM

1.3.2 Method of mining

Proposed method of mining is mechanized opencast along with deep hole drilling and blasting to produce limestone @ 5.0 Million Tonnes per annum. The mineral will be crushed at the site via primary crusher and crushed limestone will be then transported to the cement plant through covered conveyor belt.

2.0 DESCRIPTION OF THE ENVIRONMENT

2.1 CLIMATIC CONDITION

Balodabazar has a tropical wet and dry climate. Temperatures remain moderate for most of the year, apart from the summer from March to June, which can be extremely hot. Monsoon season starts from late June and ends in early October. Winters last from November to January and are mild, although lows can fall to 5 °C (42 °F). There is only one observatory located in Raipur maintained by Indian Meteorology Department. The average rainfall in the district is around 1400 mm.

Climatology (During study period: Winter Season, 2011-2012**)**

i) Maximum Temperature **:** 35.0 °C

ii) Minimum Temperature. **:** 6.7 °C

iii) Relative Humidity (%)

At 08.30 Hrs. **:** 28% - 98%

At 17.30 Hrs. **:** 20 % - 53 %

2.2 OTHER BASELINE DETAILS

During the study period, ambient air quality and noise level monitoring was done at 8 locations whereas water sampling and soil sampling was done at 6 locations.

TABLE – 3

BASELINE DATA

Winter Season, 2011-2012

S.No.	Particulars	Details
A.	**Ambient air quality**	
	PM_{10}	34.5 µg/m^3 to 62.32 µg/m^3
	SO_2	6.0 µg/m^3 to 11.8 µg/m^3
	NO_x	7.2 µg/m^3 to 16.6 µg/m^3
B.	**Noise level**	
	Day time	50 to 54 Leq dB(A)
	Night time	39 to 44 Leq dB(A)
C.	**Ground Water quality**	
	pH	7.34 to 7.62
	TDS	332 mg/l to 416 mg/l
	Fluorides	0.43 to 0.68 mg/l

	Nitrates	8.44 to 12.30 mg/L
D.	**Soil quality**	
	pH	7.17 to 7.66
	Organic matter	0.64 % to 0.72 %

2.3 BIOLOGICAL ENVIRONMENT

FLORA: Most commonly found tree species in the area are *Tectona grandis* (Sagwan), *Emblica officialis* (Amla), *Acacia catechu* (Kher), *Terminalia arjuna* (Arjun), *Albizzia odoratissima* (Chichwa), *Ficus religiosa* (Pipal), *Aegle marmelos* (Bel), *Tamarindus indica* (Imli), *Terminalia belerica* (Bahera), *Calotropis procera* (Akund), *Abrus precatorius* (Ghumchi), *Terminalia tomentosa* (Saja), *Capparis sepiaria* (Kanker), *Acacia Arabica* (Babul), *Dalbergia sisso* (sisam) etc.

FAUNA: The presence of fauna depends on topography and vegetation in the area. The fauna found in the study area include Indian Hare (*Lepus nigricollis*), Indian Rat (*R. rattus*), Five striped squirrel (*Funambulus pennanti*), Common Garden Lizard (*Calotes versicolor*), Blue rock Pigeon (*Columba livia*), House crow (*Corvus splendens*), Blue bull (*Boselaphus tragocamelus*), Bull Frog (*Rana tigrina*), Common Babblers (*Turdoides caudatus*), Little egret (*Egretta garzetta*) etc.

2.4 SOCIO-ECONOMIC ENVIRONMENT

The population as per 2001 Census records is 58483 (for 10 km radius buffer zone). Scheduled Caste fraction of the population of the study area (10 km) is 9183 and Scheduled Tribe 10113.

Total literates are 32011 and that of workers those actually engaged in occupation are 24201 including, 17873 persons as Main workers & 11139 persons as marginal workers. Rest 30167 persons of the total population, are considered as non-workers. Total no. of household in the area is 11114.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

- **Impact on air -** The key air emissions from the mining activities (drilling, blasting, loading, haulage and transportation) are particulate matter, oxides of nitrogen (NO_2) and sulphur dioxide (SO_2). Use of proper mitigation measures will be taken (like water sprinkling during transport activities) & green area development along the road sides to control pollution.
- **Impact on water environment** - There are few surface water bodies which are passing within the study area (10 km radius buffer zone). There are two seasonal nallahs going out of southern boundary of lease area and Kukurdih talao just outside southeastern boundary. The seasonal water courses, over the working area will be

diverted by constructing garland drain around the mine openings. The water will be delivered to Kukurdih Talao adjacent to lease area.

There are other surface water bodies too, viz Mahanadi Canal, Khorsi Nallah & Jamuniya Nadi. There will be no outside discharge of liquid effluent from the mine site, therefore no significant impact on surface water bodies is anticipated due to mining operations.

Water level in the mining area ranges between 7 to 12m (258 to 253mrl) in pre monsoon period and between 5 to 8m (260 to 257mrl) in post monsoon period. General ground level of the mining lease area is 265 mrl.

- **Impacts of noise -** Major noise generating sources of the mining activity are drilling, blasting and trucks movement used for transportation of limestone. The instant noise level from blasting is high for some instance but it is within the prescribed limits due to application of improved technology and will be confined to working zones. The proposed plantation will help in checking propagation of noise in the surrounding areas. Mine workers will be provided ear plugs.
- **Impact on land environment** – Opencast mining activities may alter the landscape of the lease area but will not have any effect on the surface features of the surrounding areas.

  Backfilling will be done in the worked out area which will be then reclaimed & restored by plantation. Topsoil, mineral reject and interburden / waste generated from the mine will be stacked saperately & will be used for backfilling and plantation purpose within the lease area. At the conceptual stage, there will be not be any waste dump.

  At the conceptual stage total excavated area will be 221.287 ha, out of which 113.62 ha area will be backfilled & reclaimed by plantation and 107.667 ha. area will be developed as water reservoir.
- There is no National Park, Wildlife Sanctuary, Biosphere Reserve or wildlife corridor, Tiger/Elephant reserve existing or proposed within the study area (10 km radius of the mine boundary).

4.0 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

Table – 4

POST PROJECT MONITORING PROGRAMME

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Meteorological Data	Daily
2.	Ambient Air Quality at project site	Quarterly/ Half Yearly
3.	Water Quality	Quarterly/ Half Yearly
4.	Noise Level Monitoring	Quarterly/ Half Yearly
5.	Soil Quality	Half Yearly/yearly

5.0 ADDITIONAL STUDIES

The Additional Studies conducted as per the Terms of Reference (ToR) issued vide MoEF letter No. J-11015/274/2010-IA.II (M) dated 28th March, 2011, are Biological Study, Hydro-geological Study & Disaster Management Plan.

6.0 PROJECT BENEFITS

The proposed project activity will help in combating the growing demand of cement in the market & hence will help in the economic growth of the country. UTCL has already been actively involved in the CSR activities in the nearby villages of the project site. Infrastructure development in the nearby villages, creation of educational facilities, empowering women through self help groups, gainful employment for rural, health awareness programmes & surgical camps, supplementing resettlement efforts in areas affected by natural calamities, assistance social forestry programmes in the area are some of the highlights of the CSR activities which will be taken up by the company.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Quality Management

- All the haul roads will be kept properly graded with sufficient width and regular water spraying will be done on the haul roads.
- Dust masks will be provided to the workers.
- Controlled blasting will be done. Rock breaker will be used to avoid secondary blasting.
- Wet Drilling arrangements will be done
- Development of green belt/plantation will be done around the lease boundary, along approach roads and other places to arrest dust.
- Periodic air quality monitoring will be carried out.
- Proper maintenance of vehicles will be done to reduce gaseous emission

7.2 Water Quality Management

Adequate control measures will be adopted to check not only the wash-off from soil erosion but also uncontrolled flow of mine water. The measures to be adopted are:

- Garland drain will be constructed on all the sides of quarry. The collected water in the worked out pit will be used for plantation and spraying on haul roads.
- Water percolating into the mine during mine working will be guided through channels cut in the floor of benches to a sump in the floor of the lowest bench. The water will be pumped from the sump by diesel and / or electric pumps.
- Domestic water generated from mine office & canteen/rest shelter shall be disposed off in septic tanks via soak pits.
- Waste water generated from workshop shall be properly collected, treated so as to comply with the prescribed standards.

7.3 Solid Waste Management

- Waste will be generated in the form of top soil, interburden and mineral reject. The top soil & waste likely to be generated upto end of life of mine are 9.22 Mm^3 and 11.9 Mm^3 respectively. Mineral rejects/ losses will be 10% of ROM.
- The soil/waste will be stacked separately and ultimately used for plantation purposes around the lease area and for backfilling. No external dumps will remain at the end of life of mine.

7.4 Noise & Vibration Control

- All precautions will be taken to keep noise levels within the prescribed standards.
- Closed cabins will be provided for drill operator.
- Proper maintenance, oiling and greasing of all the machineries will be done to reduce the generation of noise.
- Controlled blasting will be done with NONEL detonating system. Secondary blasting will be avoided, instead rock breaker will be used.
- Earmuffs/Earplugs will be provided to operators and persons subjected to high noise levels.
- Plantation will be taken up around the lease area and along the haul roads to minimize the propagation of noise.

7.5 Socio-Economic Environment

Better education facilities, proper health care, road infrastructure and drinking water facilities are basic social amenities for better living standard of any human being. UltraTech Cement Limited will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities.

8.0 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area would also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of proposed Mine.

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