



ENV/KDL/DEP-11B/SMPR/2015 / 3416

Dated: 10.12.2015

Additional Director (Scientific)
Govt. of India
Ministry of Environment and Forest
Regional Office, Western Region,
Kendriya Paryavaran Bhavan,
Link Road No.3, Ravi Shankar Nagar,
Bhopal – 462 016.

Sub: Six Monthly Progress Report (April' 2015 to September' 2015) on Environmental Compliance in respect of Bailadila Iron Ore Project, Deposit – 11B Kirandul of NMDC Ltd, South Bastar, Dantewada, Chhattisgarh.


Ref: Environmental Clearance letter no.J-11015/416/2005-IA.II (M) dated 11/09/2006 received from MoEF, New Delhi.

Sir,

With reference to the above, please find enclosed herewith Six Monthly Progress Report for the period April' 2015 to September' 2015 on Environmental Compliance in respect of Bailadila Iron Ore Project, Deposit – 11B Kirandul of NMDC Ltd, South Bastar, Dantewada, Chhattisgarh.

Thanking you,

Yours faithfully,


(M. Jayapal Reddy) 10/12/15
JGM (Env)

Encl: As above.

**TERMS & CONDITIONS
OF
ENVIRONMENTAL CLEARANCE OF DEPOSIT -11B GRANTED BY
MoEF, NEW DELHI**

Letter No. J-11015/416/2005-IA.II (M)

New Delhi, Dated 11.09.2006

PERIOD: APRIL' 2015 to SEPTEMBER' 2015

A.SPECIFIC CONDITIONS

Sl.No.	COMPLIANCE CONDITIONS	STATUS
i	The environmental clearance is granted to 11-B deposit only having lease area of 535.003 ha.	<i>Environment Clearance is granted to lease area of 535.003 ha. of 11B deposit.</i>
ii	All the condition stipulated by State Pollution Control Board in their consent to establish should be effectively implemented.	<i>Compliance to conditions of consent to establish stipulated by SPCB are ensured.</i>
iii	The mining operations shall not intersect groundwater table. The mine working will be restricted to above water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	<i>As per hydro-geological studies carried out, the mining operations will not intersect ground water table.</i>
iv	Topsoil, if any shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	<i>There is no top soil available in the mining area. Reclamation will be done as per guidelines laid down by IBM, Nagpur.</i>
v	Overburden should be stacked at earmarked dump site (s) only and should not be kept active for long period. The total height of the dumps shall not exceed 64 m, having four benches. Overall slope of the dump shall not exceed 28°. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas use of geo textiles shall be undertaken for stabilization of dumps. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance	<i>Waste rock is dumped only at one designated waste dump. Buttress walls have been constructed at the toe of the waste dump.</i>

Sl.No.	COMPLIANCE CONDITIONS	STATUS
	status should be submitted to the Ministry of Environment & Forests on six monthly basis.	
vi	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working, soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area. Roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for both mine pit and for waste dumps and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and Desilted at regular intervals.</p>	<p><i>Two new check dams have been constructed across the stream to arrest the erosion of soil and the suspended matter flowing with water in rainy reason in addition to 14 nos. of existing check dams at BIOM, Kirandul complex.</i></p> <p><i>A storm water drain of 50 meter length has been constructed during October 2014 .to March 2015 along the road & 2 no.s pf box drains in road crossing which includes channelizing the flow to minimize erosion, facilitate slope protection, collecting rain water from surrounding catchment area and its safe discharge.</i></p> <p><i>Waste rocks are being dumped at earmarked waste dump site. Buttress walls have been constructed at the toe of waste dump of deposit-11B and are being maintained regularly.</i></p>

vii	Dimension of the retaining wall at the toe of dumps and OB benches within mine to check run-off and siltation should be based on the rainfall data.	<ol style="list-style-type: none"> 1. Retaining wall for slope protection works of TH-02 & PSP area and subsequent backfilling work in slope, and channelizing the storm water by 2 no.s of box drains and drain 100 m (L) X 2.5 m (B) X 1.5 m (H) to discharge safely. 2. Construction of buttress wall of approx. 50 meter length (5mX3m) at the toe of waste dump. 3. Construction of retaining wall at North & South side of dumper platform & drain approx. 48.0m (L) X 0.5 m (B) X 0.5m (H) to channelize the storm water upto discharge point safely. 															
viii	Plantation shall be raised in entire area of 535.003 ha. including a green belt of adequate width by planting the native species around the ML area, OB dump sites, roads etc. in consultation with the local DFO/ Agriculture department. The density of the trees should be around 2500 plants per ha.	An area of 1214.96 ha. (Within and outside the lease areas) has been developed under greenbelt development. An amount of Rs. Rs. 710.3 lakhs has been spent for plantation of 13, 95, 502 no. of saplings in the above area. Also an amount of Rs. 5.49 crores has been released to Chhattisgarh Rajya Van Vikas Nigam Limited, Raipur for carrying out road side plantation over a length of 50 km under Harihar Chhattisgarh program.															
ix	The slime dumped already on land should be cleared within 5 years and thereafter there shall be no external dumps of slime.	Noted.															
x	Diversion of Madadi Nallah will be carried out within 5 years.	An Earthen Channel is constructed for diversion of Madadi Nallah.															
xi	Regular monitoring of water quality downstream of check dam after the tailing pond should be carried out particularly in location close to habitation along the Nallah. The record of monitoring data should be maintained and submitted to MoEF, its Regional Office, SPCB and CPCB. The monitoring of water quality downstream may start immediately.	<p>Complied with. The discharged water from the tailing dam is monitored in four seasons and the report is submitted to MOEF, CPCB & SPCB. The water quality data of the monitoring carried out in summer season 2015 is given below:</p> <table border="1" data-bbox="842 1691 1460 1937"> <thead> <tr> <th>Parameters</th> <th>Quantity (in mg/l)</th> <th>GSR-422(E) Norms (in mg/l)</th> </tr> </thead> <tbody> <tr> <td>Suspended solids</td> <td>18</td> <td>100</td> </tr> <tr> <td>BOD - 5 Day 25° c</td> <td>8</td> <td>30</td> </tr> <tr> <td>Iron (As Fe²⁺)</td> <td>0.41</td> <td>3.0</td> </tr> <tr> <td>Oil & grease</td> <td>Nil</td> <td>Nil</td> </tr> </tbody> </table> <p>Levels are well within the permissible limits of Prescribed Standard.</p>	Parameters	Quantity (in mg/l)	GSR-422(E) Norms (in mg/l)	Suspended solids	18	100	BOD - 5 Day 25° c	8	30	Iron (As Fe ²⁺)	0.41	3.0	Oil & grease	Nil	Nil
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Oil & grease	Nil	Nil															

xii	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	<i>Rainwater harvesting is being carried out into the ponds (4Nos.) for recharging of ground water. M/s Space Geo Tech, Bangalore consultant has been appointed for ground water study of in and around the mining area of BIOM, Kirandul Complex. Eleven nos. of ponds have been constructed for rainwater harvesting in different villages.</i>
xiii	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director, Central Ground Water Board.	<p><i>Ground water level and quality is regularly (once in a season throughout the year) monitored through MoEF, approved laboratory (M/s Space Geo Tech, Bangalore.) at 30 different locations around BIOM Kirandul Complex. Regularly ground water report is being submitted to Regional Office, MOEF, Bhopal through head office of NMDC Limited, Hyderabad.</i></p> <p><i>The ground water level & quality monitoring has been carried out for Monsoon Season 2015 at BIOM Kirandul Complex.</i></p> <ul style="list-style-type: none"> • <i>The ground water levels varied from 1.60 to 12.95 meters.</i> • <i>pH varied between 6.0 to 7.1.</i> • <i>Total Dissolved Solids levels varied between 3 to 215 mg/l.</i> • <i>Total Hardness levels varied between 0.5 to 136 mg/l.</i> • <i>Alkalinity levels varied between 0.5 to 124.00 mg/l.</i> • <i>Fluoride (F) levels varied between 0.05 to 0.53 mg/l.</i> • <i>Fe levels varied between 0.02 to 0.54 mg/l.</i> <p><i>The higher levels of Fe were observed at two (10) no.s of hand pumps.</i></p> <p><i>The higher levels Fe is due to the natural lateritic formation in the area. However the project is taking steps towards the installation of iron removal plants for hand pumps located in villages around the project.</i></p>
xiv	Permission from the competent authority should be obtained for withdrawal of surface water and ground water if any, required for the project.	<i>Noted</i>
xv	Suitable rainwater harvesting measures	<i>Rainwater harvesting is being carried out into</i>

	on long term basis shall be planned and implemented in consultation with Regional Director, CGWB.	<i>the ponds (4Nos.) for recharging of ground water. In addition to the above, 11nos. of ponds have been constructed in different villages such as Madadi, Cholnar, Perpa, Pirnar, Penta and Lendra.</i>
xvi	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	<i>Pollution checking of 138 no.s of light & heavy vehicles of the project has been carried out. Transportation of mineral is being carried out through railway rakes.</i>
xvii	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	<i>Noted</i>
xviii	Drills should be wet operated or operated with dust extractors.	<i>Noted</i>
xix	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as leopard, peacock etc. spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and its implementation shall start by 2007 in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of allocation plan may be submitted to the Ministry and its Regional Office within 3 months.	<i>A wild life conservation plan has been prepared for Dantewada division and the same has been approved by PCCF (wild life) Raipur with a financial out lay of Rs.15.50 crores (Rupees Fifteen Crores Fifty Lakhs only). The amount has been transferred to CAMPA account on 30.04.2014.</i>
xx	Consent to operate should be obtained from SPCB before starting production from the mine.	<i>CECB, Raipur has issued consent to operate vide their letter no. 6503/TS/CECB/2007 Raipur, dated 28.11.2007 and No. 6501/TS/CECB/2007 Raipur, dated 28.11.2007 under section 21 of Air (Prevention and Control of Pollution) Act, 1981 and under section 25/26 of the water (Prevention and Control of Pollution) Act, 1974 respectively.</i>

xxi	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and mineral separation plant wastewater.	<i>Sewage generated from the colony is being treated in Oxidation ponds. It is also proposed to install Sewage Treatment Plant for the township. 10 KLD capacity of ETP has been installed for treatment of effluent generating from work shop located at hilltop deposit-14. Other is proposed at hill top deposit-11B</i>
xxii	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests.	<i>Noted.</i>

B. GENERAL CONDITIONS:

Sl.No.	COMPLIANCE CONDITIONS	STATUS
i	No change in the mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	<i>There is no change in the mining technology and scope of mining. It is the same as approved by the Ministry of Environment & Forest.</i>
ii	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	<i>There is no change in the calendar plan.</i>
iii	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	<p><i>Ambient air quality monitoring have been carried out at 15 different locations (fortnightly in 3 seasons other than monsoon) and fugitive dust emissions monitoring (monthly in 3 seasons other than monsoon) is being carried out at 20 different locations by MoEF approved laboratories.</i></p> <p><i>Fugitive Emissions Monitoring is carried out as per MoEF, New Delhi, Notification GSR.809 (E) dated 4.10.2010.</i></p> <p><i>The following are the details of Ambient Air Quality Stations:</i></p> <p>Core Zone:</p> <ol style="list-style-type: none"> <i>1. Deposit 14-Mine Office</i> <i>2. Deposit 11C-Mine Office</i> <i>3. Loading Plant, near CSD, Kirandul</i> <i>4. Between Screening Plant I&II</i> <i>5. Proposed site for CP-14 (P-plot)</i> <i>6. Motor room 203 (Near tunnel mouth)</i> <i>7. Proposed site for CP-11B</i>

Sl.No.	COMPLIANCE CONDITIONS	STATUS
		<p>Buffer Zone:</p> <ol style="list-style-type: none"> 1. Kodenar Village 2. Perpa Village 3. Kadampal Village 4. Near Malinger Pump House 5. Proposed Site for SP-III 6. DLM Colony 7. Residential Quarters near Millenium Park 8. Ambedkar Bhawan
iv	<p>Data on ambient air quality (RPM, SPM, SO₂, NO_x) should be regularly submitted to the Ministry including its Regional Office located at Bhopal and the State Pollution Control Board/ Central Pollution Control Board once in six months.</p>	<p>Data on ambient air quality is regularly submitted to Ministry and Regional Office located at Bhopal, SPCB and CPCB through head office of NMDC Limited, Hyderabad.</p> <p>The air quality data of monitoring carried out in summer season 2015 is given below:</p> <p>Fugitive Dust Emissions:-</p> <ul style="list-style-type: none"> • Total Particulate Matter levels varied between 298 and 428.2 µg/m³. • Sulphur-dioxide levels varied between 10.2 and 14.1 µg/m³. • Nitrogen oxides levels varied between 14.3 and 20.4 µg/m³. <p>Ambient Air Quality:</p> <ul style="list-style-type: none"> • Particulate Matter under 10 microns (PM₁₀) varied between 43.2 and 78.6 µg/m³. • Sulphur-dioxide levels varied between 9.5 and 15.4 µg/m³. • Nitrogen oxides levels varied between 13.6 and 21.4 µg/m³. • Carbon monoxide levels are below detectable limits. • PM_{2.5} varied between from 19.7-34.2 µg/m³.
v	<p>Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.</p>	<p>Various preventive/ mitigative measures such as water sprinkling, green belt development etc. have been taken up to control fugitive dust generation from all the sources.</p>

Sl.No.	COMPLIANCE CONDITIONS	STATUS
vi	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/ muffs.	<p><i>Following control measures are taken to control the noise levels:</i></p> <ul style="list-style-type: none"> • <i>Regular Maintenance of vehicles.</i> • <i>Developing greenbelt</i> • <i>Ensuring periodical monitoring of noise levels.</i>
vii	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (IE) dated 19 th May, 1993 and 31 st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	<p><i>One ETP (Capacity 10 KL) has been installed at the hilltop (Deposit-14) for treatment of effluent coming from auto garage and analysis of water samples is being carried out in all four seasons. Other is proposed at hill top deposit-11B.</i></p>
viii	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	<p><i>Regular trainings related to Environment, Safety and on Health aspect are being given by Training & Safety Department to workers engaged in construction of the project.</i></p> <p><i>Periodic Medical Examination is ensured for all workers. Number of workers of BIOM Kirandul Complex, tested under Periodic Medical Examination during the period April 2015 to September 2015 is 382.</i></p>
ix	Separate environmental management cell with suitable qualified personnel should be set-up under the control of Senior Executive, who will report directly to the Head of the Organization.	<p><i>A separate Environmental Management Dept. has been established with well qualified and experienced personnel under the control of Jt.GM (Production) through DGM (Mining) Training & Safety/Environment. The organizational chart of environment department is enclosed as Annexure – I.</i></p>
x	The project authorities should inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	<p><i>Information pertaining to date of financial closures and final approval of the project is being sent to Regional Office of the Ministry by our Head Office, Hyderabad and land development work has been started after 28.10.2006</i></p>
xi	The funds earmarked for environment protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its	<p><i>For the year 2014-15, an expenditure of Rs.987.74 Lakhs has been incurred for Environmental Protection/ Improvement works at BIOM Kirandul Complex.</i></p>

Sl.No.	COMPLIANCE CONDITIONS	STATUS
	Regional Office located at Bhopal.	
xii	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data /information/ monitoring reports.	<i>The project offers its full cooperation to Regional Office by furnishing the requisite data/information/monitoring reports and also for inspection of Mines, monitoring locations etc.</i>
xiii	A copy of clearance letter will be marked to concerned Panchayat/ local NGO, if any from whom suggestion/ representation has been received while processing the proposal.	<i>Noted.</i>
xiv	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	<i>Displayed.</i>
xv	The project authorities should advertise at least in two local newspaper widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of clearance letter informing that the project has been accorded environmental clearance and a copy of clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded, to the Regional Office of this Ministry located at Bhopal.	<i>Industry has published in local newspaper Viz- Highway channel, Raipur, Dainik Bhaskar, Raipur, Navi Bharat, Raipur, Hitavada, Raipur, Edition on 18.09.2006 and Amarit Sandes, Raipur, Dandakarnain samachar, Raipur, Hitavada, Raipur Edition on 19.09.2006.</i>

LIST OF ANNEXURES

- I. Organizational Chart of Environment Department at BIOM, Kirandul Complex.

**Organizational Chart
of
Environment Department at BIOM, Kirandul Complex**

