

ACTION PLAN FOR OBSERVATIONS OF REGIONAL OFFICE, MOEFCC, NAGPUR

- REF: 1. ENVIRONMENTAL CLEARANCE LETTER NO:J-11015/483/2007-IA.II(M) DATED 11/09/2007.**
2. SITE INSPECTION ON 11.10.2017 by SCIENTIST C, MOEFCC, RO, NAGPUR
3. MOEFCC, RO, NAGPUR REPORT VIDE LETTER NO: 3042/2007-ENV/2959 DATED 29/11/2017.

Sr. No	Observations	Action Plan
1. Condition complied with partially by the project proponent (PP)		
i)	<p>Condition no. (i) & (ii) of specific condition: - Efforts being made by the user agency for the slime management appeared to be inadequate. The PP needs to explore the options for effective and speedy utilization of slime accumulated in the Tailing Dam.</p>	<ul style="list-style-type: none"> ✓ NMDC Limited has made all efforts for protection of environment, therefore the wet processing of Iron ore is stopped and switched to dry mode since November 2010, as a result no slimes are being generated and deposited in tailing Dam. ✓ Kirandul Nala has been constructed with RCC channel to separate surface water runoff from slime upto Tailing pond. ✓ 23,20,232 cum deposited silt has been desilted from different check dams and Kadampal tailing dam from Calendar year 2006 to November 2017. Retrieved silt is being stacked and protected with measures have been taken within MV Siding. Presently desilted slime is being blended with high grade iron ore mines to meet customer requirements as the Fe Content in desilted material varies from 59-61 %. ✓ Apart from the above NMDC Limited is trying to locate suitable customer for supplying the silt material (Iron Ore Slime) from Kadampal Tailing dam. ✓ It is proposed to install 4 MTPA beneficiation plant at Bailadila Iron Mine Bachel Complex of NMDC Limited for effective and complete utilization of slime for which environmental and forest clearance have been accorded by MOEF&CC vide letter dated 27/04/2017 and dated 27/09/2017 respectively. NMDC Limited has obtained Environment clearance from MoEF&CC for installation of 2 MTPA capacity pellet plant which is proposed at Jagdalpur (C.G). ✓ Further, 6.0 MTPA Iron Ore Processing (Beneficiation) Plant and extension of NMDC Slurry pipeline system from Kirandul to Bachel is proposed for which the work of technical consultancy is being awarded to M/s. MECON for preparation of EIA/EMP and the work is under progress. ✓ Lowest bench of mining pits 14, 11C and 11B have been created into settling basin, where from surface runoff off the mines pits are routed into the respective settling basins. The mine water is allowed to settle in the basin and clear water discharged toward downward side. Thereafter water is allowed to be filtered through buttress walls constructed at the foot of hill. Seasonal water quality monitoring is being carried out through MoEF&CC recognized laboratory toward upstream and downstream of buttress walls. Seasonal water quality report is enclosed as Annexure-1 for your kind reference. ✓ Check dam No. 2, 3, 4 and 5 have been constructed across tributaries of Kirandul Nala for arresting surface runoff silts. Surface runoff over flow of Check Dam No. 2 is routed through ponds constructed at toe of hill (intake well), where silts are arrested into ponds and surplus over flow runoff allowed to pass across series of Check Dams No. 7, 8, 9 and PWD bridge constructed across Kirandul Nala. Surface runoff water of Check Dams no. 3, 4 and 5 is also routed into Kirandul Nala at upstream side of Check Dam No. 7. ✓ Check dam No-1 has been constructed across Malangir Nala to arrest silts flowing with runoff water.

		<ul style="list-style-type: none"> ✓ Check Dam No. 6 has been constructed across the stream near Bengali camp to arrest runoff water silt. These Nalas are being regularly monitored and is ensured regular de-silting from tailing dam and different check dams under pre-monsoon preparatory work.
ii)	<p>Condition no.(iv) of the specific condition: - No conceptual mining plan for every five years for the life of mine has been prepared and submitted to the MOEF&CC. Further, no efforts appears to have been made by the PP to develop pisci-culture by organizing fishermen co-operative society with the land users and the poorer section (especially tribes) of area, financial assistance, marketing tie up for the cooperative societies as no supporting details in this regard could be furnished by the PP</p>	<ul style="list-style-type: none"> ✓ The approved conceptual mining plans are given in CD attached as Annexure-2 for kind reference please. ✓ The Deposit-14&11C project is located in the tribal district of Dantewada. The tribal in the district are depending on customary occupation such as cultivation, collection and selling of forest produce. ✓ However, NMDC Limited has engaged NGO (Samhitamath) under Integrated Village Development Initiative for socio-economic development of local residents. NMDC Limited is also motivating and giving basic training to the tribal local residents for Pisciculture. Local residents, those who are interested in pisciculture providing lands for construction of ponds. As on date 14 Ponds have been developed for pisciculture. Photographs are enclosed as Annexure-3 for your kind perusal please. ✓ Further, NMDC Limited will continue the financial assistance to the dependent tribal community on fishing/ poorer section in association with State fisheries department or NGOs.
iii)	<p>Condition no.(vii): - The PP needs to strengthen measures to check flowing of OB into the surrounding forestland by constructing garland drains of consideration size coupled with strong buttress wall</p>	<p>Waste dump management: Following preventive measures have been taken to Check flow of OB as given under: Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. Surface runoff water has been diverted from waste dumping sides.</p> <p>Waste dump management: Following preventive measures have been taken to Check flow of OB as given under: <ul style="list-style-type: none"> ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. ✓ Surface runoff water has been diverted away from waste dumping sides. </p> <p>Recommendations given by Indian Institute of Technology (ISM) Dhanbad, are being implemented in the project. Institute recommended for construction of buttress walls at out let of mining pits and at the toe of waste dumps. The status of works is given below: Deposit-14 (At the toe of Old Waste dump)- Work Completed. Further heightening of buttress wall is under progress. Deposit- 14 (At the toe of BHQ Waste dump)- Completed at two locations. Deposit -14 (exit of drain at Old waste dump)- Completed. Deposit-11C (At the toe of waste dump)-Under progress Deposit-11B (At the toe of waste dump) – Under progress. Deposit- 11B (At the toe of looserock)- Completed.</p> <p>Geo-coir matting has been done in front of mechanical workshop in deposit-11C to stabilize the loose soils over an exposed surface area of 2500 sq.mt. The over burden dumps will be further strengthened with buttress wall and all efforts will be taken to prevent the flow of OB into the surrounding area. On behalf of NMDC Limited, local species have been afforested by Chhattisgarh Rajya Van Vikas Nigam Limited and Research and Development Centre, Social Forestry Division Jagdalpur within and outside the mining leases. Apart from plantation, vetiver Grass were planted on exposed surface of waste dumps in 14 ML to control erosion. ICFRE, Dehradun a Premier forest research institute has been engaged in preparation of Environment Management Plan and Rehabilitation for mining leases pertaining to BIOM Kirandul Complex. Work order for estimated values of Rs. 101.74 Lakh was awarded on 04/09/2017 to Institute. The</p>

		<p>team from ICFRE, Dehradun has visited the ML areas of 14&11C and 14 NMZ from 10.11.17 to 18.11.2017. The suggestive measures and recommendation given by ICFRE will be implemented in mining leases.</p> <p>NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, buttress walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1" data-bbox="740 504 1366 640"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table> <p>The over burden dumps will be further strengthened with buttress wall and all efforts will be taken to prevent the flow of OB into the surrounding area.</p> <p>NMDC Limited has also engaged CIMFR, Dhanbad for slope stability analysis of waste dumps. Area experts collected the samples from mines and study is in progress. Recommendation and suggestions given by institutes will be implemented.</p>	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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2009-10	1.4 Cr.											
2012-13	1.035 Cr.											
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2017-18	2.19 Cr.											
iv)	<p>Condition no. (x) of specific condition: - PP has undertaken plantation in the blank area through Chhattisgarh State Forest Development Corporation. However, exact area planted under the extent mining lease could not be worked out as the mine wise detail of plantation was not available with the user agency.</p>	<p>All blank area within the mining leases have been planted with suitable local native species as per conditions stipulated in Forest clearance letter issued by MOEF&CC in 1998/99. Project proponent has continually pursued the above subject matters with local state forest Authority. Details of minutes of meeting is enclosed as Annexure- A. Cited afforestation has been done by recognized Govt. bodies such as Chhattisgarh Govt. Research and Development Centre, Jagdalpur and Chhattisgarh Rajya Van Vikash Nigam Limited Bhanupur, Chhattisgarh. NMDC Limited has undertaken plantation work over an area of 147.758 Ha. within mining lease 14ML, 267.115 Ha. within mining lease 14 NMZ and 662.287 Ha. within the mining lease 11ML. The details of year wise plantation (Area, Types of Species, survival Rate, location plan etc) done by NMDC Limited given in Annexure -4.</p> <p>In this connection monitoring committee was constituted, comprising of members Mr. M.R. Suryavanshi, Forest Guard, Konta Social Forest Division, Shri.P.K. Sengupta, Manager (Mining) T&S NMDC Limited, Shri.D.C.S Murthy, Dy. Manager (Finance) NMDC Limited and Shri.S.B. Kushwaha, Dy. Manager (Civil) NMDC Limited for carrying out inspection and assuring the percentage of survival of plantation done within the blank area falls within the mining leases. Details of afforestation done by Chhattisgarh Govt. Research and Development Centre, Jagdalpur and Chhattisgarh Rajya Van Vikash Nigam Limited Bhanupur, Chhattisgarh on behalf of Bailadila Iron Ore Mines Kirandul Complex are enclosed as Annexure-5. The blank area falling with the mining leases allocated to NMDC Limited and for protection of mining leases from external interference NMDC had paid Safety Zone Management charges to the forest department. Again we have given work order to Chhattisgarh Rajaya Van Vikash Nigam on 18/05/2017 for development of green belt within the safety zone and fencing of safety zone. In this connection 5,000 saplings have been done within the safety zone and 600 Concrete poles have been brought to sites for installation and fencing. The work is under progress. Mining leases are being kept isolated from human interferences to propagate the successive process of growth of flora and movement of fauna. As per demand note raised by local forest department, we have paid leveling charges of mined out area @ Rs. 10,000/- (Rupees Ten Thousand per Ha) to State Forest Department, Chhattisgarh. Details of payments made are as under:</p>										

Sr. No.	Mining lease	Payment made (in Rs.)	Date
1.	14 ML (86.55 Ha.)	8,65,531.00	16/06/2006
2.	14 NMZ (80.25 Ha.)	8,02,500.00	11/4/2006
3.	11 ML (212.637 Ha.)	21,26,370.00	02/03/2008
Total		37,94,401.00	

A project level monitoring committee has been constituted which regularly monitors the progress of plantation and safety zone management.

v)	<p>Condition no. (xiii) of specific condition: - No scientific and effective measures for the water treatment in the mining pits have been undertaken by the PP. Provisions of garland drains, catch basins and siltation ponds etc has been observed to be very poor resulting into the flowing of silt into the surrounding water resources especially during rainy seasons</p>	<ul style="list-style-type: none"> ✓ NMDC Limited is mining iron ore at elevation of 1029 MSL within the mining leases in the Bailadila hill within the reserve forest. ✓ Adequate capacity of proper drainage system network has been developed within the mining leases. ✓ Surface runoff water within the pits have been routed into lowest most bench within the mining pits and lowest most bench of mining pits 14, 11C and have been created into settling basin, where surface runoff from the mines pits are routed into the respective settling basins. The mine water is allowed to settle in the basin and clear water discharged toward downward side. Thereafter water is allowed to filter through buttress walls constructed at the foot of hill. Seasonal water quality monitoring is being carried out through MoEF&CC recognized laboratory towards upstream and downstream of buttress walls. Seasonal water quality report is enclosed as Annexure-1 for your kind reference. ✓ Check dam No. 2, 3, 4 and 5 have been constructed across tributaries of Kirandul Nala for arresting surface runoff silts. Surface run off over flow of Check Dam No. 2 is routed through ponds constructed at toe of hill (intake well). Where Silts are arrested into ponds and surplus over flow runoff allowed to pass across series of Check Dams No.7, 8, 9 and PWD bridge constructed across Kirandul Nala. Surface runoff water of Check Dam no. 3, 4 and 5 is also routed into Kirandul Nala at upstream side of Check Dam No. 7. ✓ Check dam No-1 has been constructed across Malangir Nala to arrest silts flowing with runoff water. ✓ Check Dam No. 6 has been constructed across the stream near Bengali camp to arrest runoff water silt. These Nalas are being regularly monitored and regular de-silting from tailing dam and different check dams under pre-monsoon preparatory work is ensured. The photographs of check dams /bunds and de-silting carried out before monsoon are enclosed as Annexure-6 for kind reference. The check dams are regularly desilted before onset of monsoon to maintain catch basin entrapping capacity and desilted materials are being stacked with protection. <p>Waste dump management: Following preventive measures have been taken to Check OBas given under:</p> <ul style="list-style-type: none"> ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. ✓ Surface runoff water has been diverted away from waste dumping sides. <p>Details of Construction of buttress walls and other environment improve works are as mentioned at point no.(iii).</p> <ul style="list-style-type: none"> ✓ Kirandul Nala has been constructed with RCC to separate surface water runoff from slime. ✓ 23,20,232 cum deposited silt has been desilted from different check dams and Kadampal tailing dam from Calendar year 2006 to November 2017. Retrieved silt is being stacked and protected with measures which have
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		<p>been taken within MV Siding</p> <ul style="list-style-type: none"> ✓ Seasonal water quality monitoring is conducted through recognized laboratories of MOEFCC/CPCB. The seasonal water quality report of check dam / check bunds is enclosed as Annexure-1 for kind reference. 										
vi)	<p>Condition no.(iii) of general conditions: PP has not complied with the provisions of this condition in accordance with the provisions stipulated in the extant condition. Compliance of wild life management plan has been done by the PP after lapse of a period of almost 7 years. Further, no detail pertaining to the updated status if implementation of the wild life management plan has been made available by the PP</p>	<p>Forest Management taken by NMDC Limited within core Zone:</p> <ul style="list-style-type: none"> ✓ Green belts have been developed within the core zone to protect habitat of flora and fauna. ✓ Natural springs within the core zone have protected. ✓ Illicit entry and tree felling within core zone are prohibited. Two security gates have been established with CISF persons. ✓ Poaching is prohibited within the core zone, such evidence has not been noticed till date within the core zone. ✓ Watch towers are installed within the mining leases and CISF person are deployed within the core zone. ✓ Unauthorized vehicles entry is prohibited within the mining leases. ✓ Ensuring the fire protection along with CISF and local Forest Department. ✓ Two fire tenders and eight fire hydrants have been established within the core zone. ✓ Approach road and haul road are illuminated to prevent accident in mining lease. ✓ Iron ore processing systems/units are enclosed to prevent entry of fauna. Conveyor systems are enclosed to minimize impact on flora and fauna within the mining leases. ✓ Regular sprinkling of water on haul road to suppress dust and reduce impact on flora and fauna adjacent to them. ✓ CISF Persons are deployed within the zone. <p>Forest Management taken by NMDC Limited within core Zone:</p> <ul style="list-style-type: none"> ✓ BIOM Kirandul complex has paid Rs. 10,00,000/- to local forest division Dantewada (FY-2017-18) for prevention of forest fire. The Details are enclosed as Annexure-7. ✓ In the case of emergency fire tenders along with manpower are deployed to prevent fire in buffer zone. <p>NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada within buffer zone. The works include construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, buttress walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ✓ Project has constructed 50 small Water tank (Dabris) and 14 pond in Madadi, Cholnar, Pernar, Pirna, Penda and Lendra for water conservation in buffer zone. ✓ Local resident of buffer zone are using wood poles for fencing of their Badi and agriculture field. Therefore, project has taken preventive measure to reduce the impact on forest, project has sanctioned 3.6 crores in financial year 2016-17 and 2017-18 for barbed wire fencing work. First installment of 72 lakh rupees has been given to District collector, Dantewada. List of barbed wire fencing work for 100 farmers from Kuakonda and Katekalyan block attached as Annexure- 	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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		<p>8.</p> <ul style="list-style-type: none"> ✓ Project has distributed 1008 nos.of Bio-stove to nearby villages to reduce impact on forest in buffer zone. ✓ Proactively, NMDC Limited has prepared lease wise Bio-diversity conservation and Management plan through M/s IBRAD, Kolkata and submitted to CG Forest Dept(WILD Life) Vide letter dated 12/11/2012. After approval of Bio-diversity conservation and Management plan by PCCF(Wild life) Raipur Chhattisgarh NMDC Ltd has deposited Rs. 13,68,82,700/- for Deposit-14/11C Project in "Chhattisgarh CAMPA account" dated 27/01/2017. The payment details are enclosed as Annexure-9 for kind reference. ✓ The PCCF(Wild Life), Raipur has been requested by NMDC Limited vide letter dated 15/01/2018 for providing the updated status of wild life management plan of Deposit-14/11C project. The letter is enclosed as Annexure-10for kind reference. ✓ Bio-diversity conservation and management plan has been prepared for NMDC Limited Screening pant-III & NMDC Limited and CMDC Limited (JV)-Deposit -13). The details amount deposited into 'CAMPA' for Bio-diversity and wild life management plan are given below: <table border="1" data-bbox="738 786 1361 972"> <thead> <tr> <th>Sl.No.</th> <th>Particulars</th> </tr> </thead> <tbody> <tr> <td>NMDC Limited (SP-III)</td> <td>Plan approved by CWLW (CG) Fund Rs.15.50 Cr. deposited in CAMPA account of CG.</td> </tr> <tr> <td>NMDC –CMDC Limited (Deposit-13)</td> <td>Plan approved by CWLW (CG) Fund Rs.8.395 Cr. deposited in CAMPA account of CG.</td> </tr> </tbody> </table>	Sl.No.	Particulars	NMDC Limited (SP-III)	Plan approved by CWLW (CG) Fund Rs.15.50 Cr. deposited in CAMPA account of CG.	NMDC –CMDC Limited (Deposit-13)	Plan approved by CWLW (CG) Fund Rs.8.395 Cr. deposited in CAMPA account of CG.
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NMDC –CMDC Limited (Deposit-13)	Plan approved by CWLW (CG) Fund Rs.8.395 Cr. deposited in CAMPA account of CG.							
2. Conditions not complied with by the PP								
i)	<p>Condition no. (iii) of specific conditions: - No study related to the assessment of erosion potential and sedimentation control done by the user agency after receipt of the environment clearance. However, it was informed by the PP that recently a study has been awarded to the ICFRE, Dehradun which inter -alia include comprehensive assessment of erosion potential and mitigative measures in the form of soil conservation measures in the mining leases of PP</p>	<p>In this connection Technical Consultancy for Waste Water Management and Control of Water Pollution from Plant and Mines of Kirandul Complex was given to IIT (ISM). Institute conducted study from 30th Oct. to 31th Oct. 2014. It has been found that suspended solid concentration in surface water bodies flowing within mine lease area was up to 98 mg/l which is very close to standard limit of inland surface water prescribed by CPCB (i.e. 100 mg/l as per GSR 422(E)).</p> <p>Result revealed that concentration of Iron in receiving stream i.e.Taliperu, Mingachal and Sankani river varied from 0.23-0.90 mg/l but the suspended solid was well below the specified standards (200 mg/l). Thus, during the period of observation the water quality of the receiving stream was not found to be severely impacted by surface runoff.</p> <p>Mitigative measures taken by NMDC Limited are given below: Waste dump management: Following preventive measures have been taken to Check flow of OBAs given under:</p> <ul style="list-style-type: none"> ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. ✓ Surface runoff water has been diverted away from waste dumping sides. <p>Construction of buttress walls and other environment improvement works is as mentioned at point no. (iii).</p>						
ii	<p>Condition no. (vi) of specific condition: - Observations made during the inspection are enclosed at Annexure-II</p>	<ul style="list-style-type: none"> ✓ As per instructions of APCCF (LM), Raipur and MoEF&CC, NMDC Limited BIOM Kirandul Complex has deposited an amount of Rs.14,31,90,502/- dated 16/07/2016 in CAMPA account Chhattisgarh in extent to the area to be broken by FY (2040-41) in mining lease 14M (199.195 Ha.) and area to be broken by FY (2031-32) in Deposit- 11C (63.224 Ha.) as per current rate prevailing that time CA charges @ Rs.5,45,656/-Per/Ha. ✓ Enclosed as Annexure-11 for kind reference. 						
3	<p>The PP has also informed that a court case pertaining to the issues related to the evacuation of tailing dam is pending in the district court, Dantewada</p>	<ul style="list-style-type: none"> ✓ The court case pertains to the de-silting of tailing dam. The complete de-silting status of tailing dam has been submitted to CECB vide letter dated 3/12/2016. Copy is enclosed as Annexure-12 for kind reference. Further, 						

		no wet screening operationsis being done by project sinceNovember,2010.Simultaneously NMDC Limited has number of options for evacuation of deposited established silts within the Tailing dam. The Details of slime management taken by NMDC Limited is mentioned in Sl. (1).
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Further, the action plan against each condition stipulated in EC is submitted as separate **Annexure -A.**

Action Taken/proposed action for the MOEFCC compliance of EC is submitted below

Sr. No	Condition stipulated in the environment clearance	Status of compliance	Action Taken/Proposed Action.
A. SPECIFIC CONDITIONS			
i	<p>Appropriate management of slime shall be undertaken to prevent pollution of surface water bodies. As per action plan submitted to the Ministry of Environment & Forests for utilization of slime including additional slime to be generated due to proposed expansion, the slime shall be utilized for pellets manufacturing after beneficiation.</p>	<p>Partially complied with</p> <p>It was observed that slime generated is being stored into the tailing dam which is spread over an area of approximately 296.77 acres. The tailing dam was observed to be fully saturated with the with the slime i.e. tailing dam as attained its full capacity. It was informed that total capacity of the tailing dam is approximately 45 lakh cum. The PP has informed that nearly a quantity of 3.51 lakh cum has been desilted from the tailing dam during the period of last current financial year from October 2016 to March, 2017, a quantity of 66.301 cum has been de-silted from the tailing dam. The PP has also informed that to accommodate that additional slime being generated from the mining activities, de-silting of the tailing dam is being done by them regularly. Against the total slime of 6.5 lakh cum accumulated into the tailing dam, only 3.51 lakh cum have been de-silting so far by the PP.</p> <p>However, it was also observed during the inspection, that area receives incessant rain during the Monsoon and slime generated from the mining activities of the PP again settles into the tailing pond. Given the saturation level of the tailing dam, it can be ascertained that whatever is de-silted by the PP annually, almost equivalent additional slime is accumulated during rainy season and hence the efforts made by the PP for the de-silting of the slime appears to be inadequate. It was also observed that given the incessant rains and saturation of the tailing pond with slime, there are likely chances that slime is flowing beyond the tailing dam into the natural water drainage system.</p> <p>It was further observed that de-silting is being piled up in the same area as the user agency has no option to utilize the slime at present.</p> <p>Currently, no measures have been observed to be installed by the PP for the utilization of slime. However, the PP has informed that they are in a process of setting up of slime beneficiation plant at</p>	<p>Appropriate slime Management initiatives taken by NMDC Limited are given below:</p> <ul style="list-style-type: none"> ✓ NMDC Limited has made all efforts for protection of environment, therefore the wet processing of Iron ore is stopped and switched into dry mode since November, 2010, as a result no slimes are being generated and deposited in tailing Dam. ✓ Kirandul Nala has been constructed with RCC to separate surface water runoff from slime. However, Iron ore processing is being carried out in dry mode since November, 2010. ✓ 23,20,241cum deposited silt has been desilted from different check dams and Kadampal tailing dam from Calendar year 2006 to November 2017. Retrieved silt is being stacked and protected with measures which have been taken within MV Siding. Presently desilted slimes are being blended with high grade iron ore mines to meet customer requirements as the Fe Content in silt material varies from 59-61 %. ✓ Apart from the above NMDC Limited is trying to locate suitable customer for supplying the silt material (Iron Ore Slime) from Kadampal Tailing dam. ✓ NMDC Limited is proposed to install 4 MTPA beneficiation plant at Bailadila Iron Mine Bachel Complex of NMDC Limited for effective and complete utilization of slime for which environmental and forest clearance have been accorded by MOEFCC vide letter dated 27/04/2017 and dated 27/09/2017 respectively. NMDC Limited has obtained Environment clearance from MoEF&CC for installation of 2 MTPA capacity pellet plant which is proposed at Jagdalpur (C.G). ✓ Further, 6.0 MTPA capacity Iron Ore Processing (Beneficiation) Plant is proposed at Bailadila Iron Ore Mine Kirandul complex and extension of NMDC Slurry pipeline system from Bachel to Kirandul is proposed for which the work of technical consultancy is being awarded to M/s. MECON for preparation of EIA/EMP is in progress. This Slurry pipe line will be connected to proposed beneficiation plant at Kirandul complex. ✓ Lowest bench of mining pits 14, 11C & 11B have been created into settling basin, where surface runoff from the mines pits are routed into the respective settling basins. The mine water is allowed to settle in the basin and clear water discharged toward down ward side. Thereafter water is allowing to be filtered through buttress walls constructed at the foot of hill. Seasonal water quality monitoring is being carried out through MoEF&CC recognized laboratory towards upstream and downstream of buttress walls and ensuring clear water discharge from mining leases. Seasonal water quality report is enclosed as Annexure-1 for your kind reference.

		<p>Bacheli. Approval of the same has been obtained under Forest (Conservation Act, 1980 over an area of approximately 33 ha. the PP has also informed that slime accumulated in the tailing dam will be used in the slime beneficiation plant which will be further transported to the Nagarnar Steel Plant, Jagdalpur through a slurry pipe line. Proposal for the slurry pipeline has already been submitted by the PP for seeking approval under the Forest (Conservation) Act, 1980 to the Regional Office, Nagpur, However, the proposed mechanism to utilize the slime accumulated in the tailing dam is likely to take more time in years. Therefore, the PP needs to explore the options for effective and speedy utilization of slime accumulated in the tailing dam.</p>	<ul style="list-style-type: none"> ✓ Check dam No. 2, 3, 4 and 5 have been constructed across tributaries of Kirandul Nala for arresting surface runoff silts. Surface run off over flow of Check Dam No. 2 is routed through ponds constructed at toe of hill (intake well). Where Silts are arrested into ponds and surplus over flow runoff allowed to pass across series of Check Dams No.7, 8, 9 and PWD bridge constructed across Kirandul Nala. Surface runoff water of Check Dam no. 3, 4 and 5 isalso routed into Kirandul Nala at upstream side of Check Dam No. 7 and Passes through Check Dam No.8,9 and PWD bridge. ✓ Check dam No-1 has been constructed across MalangirNala to arrest silts flowing with runoff water from Forest Catchment. <p>Check Dam No. 6 has been constructed across the stream near Bangali camp to arrest runoff water silt within mining lease. These Nalas are being regularly monitored and regular de-silting from different check dams and tailing pond under pre-monsoon preparatory work is ensured.</p>																														
ii	<p>Detailed report on desilting of tailing dams and management of silt shall be submitted to the Ministry Environment & Forests at regular interval.</p>	<p>Partially complied with It was informed that during the period of October 2016 to March, 2017, a quantity of 66,301 cum has been de-silted from the tailing dams. Given the annual influx of slime into the tailing dams from the mining activities, the quantity of slime de-silted appears to be meager. No effective measures for the management of silt were observed to be being taken by the PP in their lease area. No detail pertaining to the submission of the plan for the management of slime has been made available by the PP.</p>	<ul style="list-style-type: none"> ✓ 23,20,241cum deposited silt is being desilted from different check dams and Kadampal tailing dam from Calendar year2006 to November 2017. Retrieved silt is beingstacked and protected with measures have been taken within MV Siding. Presently desilted slimes are being blended with high grade iron ore mines to meet customer requirements as the Fe Content in desilted material varies from 59-61 %. ✓ NMDC Limited is regularly incorporating de-silting status in half yearly report submitting to MoEF&CC Regional office. ✓ NMDC Limited has made all efforts for protection of environment, therefore the wet processing of Iron ore is stopped andswitched to dry mode since November 2010, as a result no slimes are being generated and depositing in tailing Dam. ✓ The proposed de-silting action plan for the year 2017-18 is as given below: <table border="1" data-bbox="1220 906 2039 1206"> <thead> <tr> <th>Sl.No.</th> <th>Locations</th> <th>Proposed de-silting quantity (In Sq.m)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Kadampal Tailing dam</td> <td>120000.00</td> </tr> <tr> <td>2.</td> <td>Check dam (DS1-DS5)</td> <td>4300.00</td> </tr> <tr> <td>3.</td> <td>Check dam no.1</td> <td>Empty</td> </tr> <tr> <td>4.</td> <td>Check dam No.2</td> <td>20000.00</td> </tr> <tr> <td>5.</td> <td>Check dam No. 3,4 & 5</td> <td>9050.00</td> </tr> <tr> <td>6.</td> <td>Check dam No.6</td> <td>Empty</td> </tr> <tr> <td>7.</td> <td>Check Dam No.7</td> <td>6500.00</td> </tr> <tr> <td>9.</td> <td>Check Dam No.8</td> <td>5250.00</td> </tr> <tr> <td>10</td> <td>Check Dam No.9</td> <td>Empty</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. ✓ Surface runoff water has been diverted from waste dumping sides. Recommendations given by Indian Institute of Technology (ISM) Dhanbad, are being implemented in the project. Institute hasproposed to construct buttress walls at out let of mining pits and at the toe of waste dumps. Recommendations given by IIT(ISM) are being implemented and the status of work are given below: Deposit-14 (At the toe of Old Waste dump)- Work Completed. Further heightening of buttress wall is under progress. 	Sl.No.	Locations	Proposed de-silting quantity (In Sq.m)	1.	Kadampal Tailing dam	120000.00	2.	Check dam (DS1-DS5)	4300.00	3.	Check dam no.1	Empty	4.	Check dam No.2	20000.00	5.	Check dam No. 3,4 & 5	9050.00	6.	Check dam No.6	Empty	7.	Check Dam No.7	6500.00	9.	Check Dam No.8	5250.00	10	Check Dam No.9	Empty
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iii	Assessment of erosion potential and sedimentation control plan shall be carried out and submitted to the Ministry.	<p>No complied with No study related to the assessment of erosion potential and sedimentation control done by the User Agency after receipt of the environment. However, it was informed by the PP that recently, a study has been awarded to the ICFRE, Dehradun which inter-alia include compressive assessment of erosion potential and mitigative measures in the form of soil</p>	<p>In this <i>connection</i> Technical Consultancy for Waste Water Management and Control of Water Pollution from Plant and Mines of Kirandul Complex was given to IIT (ISM). Institute conducted study from 30th Oct. to 31th Oct. 2014. The result found that suspended solid concentration in surface water bodies flowing within mine lease area was found up to 98 mg/l which is very close to standard limit of inland surface water prescribe by CPCB (100 mg/l as per GSR 422(E)). Result raveled that concentration of Iron in receiving stream i.e. Taliperu,</p>										

conservation measures in the mining leases of the PP. so far, the PP has undertaken soil conservation measures through State Forest Department only.

Mingachal and Sankani river varied from 0.23-0.90 mg/l but the suspended solid was well below the specified standards (200 mg/l). Thus, during the period of observation the water quality of the receiving stream was not found to be severely impacted by surface runoff.

Subsequent year study was conducted by IIT(ISM) Dhanbad from **24th August to 27th August 2015** and result found that total suspended solid in surface water runoff were ranged from 87.2 mg/l to 144.2 mg/l within the mining lease. Which is well below the specified standards IS 2296 Class (200 mg/l). **Suspended solid in mining water discharge was found 79.6 mg/l. Which is well within the IS 2296 Class C.**

Mitigative measured taken by NMDC Limited are given below:

Recommendations and suggestions given by Indian Institute of Technology (ISM) Dhanbad, are being implemented in the project. Institute has recommended to construct additional buttress walls at out let of mining pits and at the toe of waste dumps. The status of work is given below:

Deposit-14 (At the toe of Old Waste dump)- Work Completed. Further height of buttes wall is under progress.

Deposit- 14 (At the toe of BHQ Waste dump)- Completed at one location.

Deposit -14 (exit of drain at Old waste dump)- Completed.

Deposit-11C (At the toe of waste dump)-Under progress

Deposit-11B (At the toe of waste dump) – Under progress.

Deposit- 11B (At the toe of loss rock)- Completed.

Lime stone filter: Location Kirandul Nala – Work order awarded.

Waste dump management:

Following preventive measures have been to Check OB as given under:

- ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water.
- ✓ Surface runoff water has been diverted away from waste dumping sides.

Geo-coir matting done in front of mechanical workshop in deposit-11C to stabilize the loose soils over an exposed surface area 2500 sq.m.

The over burden dumps will be further strengthen with buttress wall and take all efforts to prevent the flowing of OB into the surrounding area.

On behalf of NMDC Limited, local species have been afforested by Chhattisgarh Rajya Van Vikash Nigam Limited and Research and Development Centre, Social Forestry Division Jagdalpur within and outside the mining leases.

Apart from plantation, vetiver Grass were planted on exposed surface of waste dumps in 14 ML to control erosion.

ICFRE, Dehradun a Premier forest research institute has been engaged in preparation of Environment Management Plan and Rehabilitation for mining leases pertaining to BIOM Kirandul Complex. Work order for estimated values of Rs. 101.74 Lakh was awarded on 04/09/2017 to Institute. The team from ICFRE, Dehradun has visited the ML areas of 14&11C and 14 NMZ from 10.11.17 to 18.11.2017. The suggestive measures and recommendation given by ICFRE will be implemented in mining leases.

NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, butters walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:

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iv	<p>Conceptual mining plan for every five year for the life of the mine shall be submitted to the Ministry for record. Water bodies shall be developed and utilized to develop pisci-culture by organizing fishermen cooperative society with the land users and the poorer section (especially tribals) of area opted as members of such society. Financial assistance in the form of share money and managerial assistance shall be made available so that the members themselves can run the affairs of the society in due course. The project proponent shall arrange marketing tie up so that the society gets fair price of their produce and the profits are equitably shared by the members of the society as regular source of income.</p>	<p>Partially complied with No conceptual mining plan for every five years for the life of mine has been prepared and submitted to the MoEF&CC. However, it was observed that as per provision of the Mineral Concession Rules, the PP has prepared Mining plan for a period of 5 years and got the same approved by the IBM Nagpur. Currently, the mining plan of the PP is valid for the period of 01.04.2015 to 31.03.2020 Further, no efforts appears to have been made by the PP to develop pici-culture by organizing fishermen cooperative society with the land users and the poorer sectin (especially tribals) of area, financial assistance, marketing tie up for the cooperative societies as no supporting detail in this regard could be furnished by the PP.</p>	<ul style="list-style-type: none"> ✓ The approved conceptual mining plans are given in CD attached as Annexure-2 for kind reference please. As per instructions given by APCCF (LM), Raipur and MoEF& CC, NMDC Limited BIOM Kirandul Complex has deposited an amount of Rs.14,31,90,502/- dated 16/07/2016 in CAMPA account Chhattisgarh in extent to the area to be broken by FY (2040-41) in mining lease 14M (199.195 Ha.) and area to be broken by FY (2031-32) in Deposit- 11C (63.224 Ha.) as per current rate prevailing that time CA charges @ Rs.5,45,656/-Per/Ha. Enclosed as Annexure-11 for kind reference. ✓ The Deposit-14&11C project is located in the tribal district of Dantewada. The tribal in the district are depending on customary occupation such as cultivation, collection and selling of forest produce. They are showing least interest in fishing than their traditional occupation. ✓ However, NMDC Limited has engaged NGO (Samhitamath) under Integrated Village Development Initiative for socio-economic development of local residents. NMDC Limited is also motivating and giving basic training to the tribal local residents for Pisci-culture. Local residents, those are interested in pisci-culture and providing lands for construction for ponds. As on date 14 Ponds have been developed for pisci-culture and rain water harvesting. Photographs are enclosed as Annexure-3 for your kind perusal please. Further, NMDC Limited will continue the financial assistance to the dependent tribal community on fishing / poorer section in association with State fisheries department or NGOs. 										
v	<p>Top soil/solid waste shall be stacked properly with proper slope with adequate safeguards and shall be backfilled (wherever applicable) for reclamation and rehabilitation of mined out areas.</p>	<p>No stacking/dumping of top soil and its management were seen in the lease area during the inspection. The PP has informed that area falls in Bailadilla Mountain Range having rocky substratum and almost there is no top soil in the area due to exposed rocks and accordingly, management of top soil, for want of top soil, could not be undertaken.</p>	<p>Bailadila has undulated rocky hilly terrain and hence almost there is no top soil in the area due to exposed rocks.</p>										
vi	<p>Overburden should be stacked at earmarked dump site (s) only and shall not be kept active for long period. The maximum height of the dumps shall not exceed 30 m, each stage shall be preferably be of 10 m and the overall slope of the dump shall not exceed 28°. The OB dumps shall be backfilled. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and</p>	<p>Not complied with Observations made during the inspection are enclosed at Annexure-II.</p>	<p>The compliance report is enclosed as Annexure- II for kind reference.</p>										

	management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.												
vii	Garland drains shall be constructed to arrest silt and sediment flows from soil, and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de-silted particularly after monsoon and maintained properly. Garland drain of appropriate 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>Partially complied with</p> <p>A buttress wall is observed being constructed by the PP to arrest the silt and mineral from the dumps. Given the steep slope of the area coupled with incessant rain and poor OB management practices, the Buttress wall is washed away during the rainy season causing the silt/slime to flow into the surrounding forest areas.</p> <p>It was observed that the PP has constructed small catch drains to create sump for the settling of the silt/slime. However, given the catchment area of the mine, the capacity of the catch drains appears to be nominal. The PP has been advised to design and construct such structures in based on the rainfall data, catchment area and silt/slime flow to effectively control and arrest the silt and slime within the lease area.</p>	<p>✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water.</p> <p>✓ Surface runoff water has been diverted from waste dumping sides. Recommendations given by Indian Institute of Technology (ISM) Dhanbad, are being implemented in the project. Institute has proposed to construct buttress walls at out let of mining pits and at the toe of waste dumps. Recommendations given by IIT(ISM) are being implemented and the status of work are given below:</p> <p>Deposit-14 (At the toe of Old Waste dump)- Work Completed. Further heightening of buttes wall is under progress.</p> <p>Deposit- 14 (At the toe of BHQ Waste dump)- Completed at two locations.</p> <p>Deposit -14 (exit of drain at Old waste dump)- Completed.</p> <p>Deposit-11C (At the toe of waste dump)-Under progress</p> <p>Deposit-11B (At the toe of waste dump) – Under progress.</p> <p>Deposit- 11B (At the toe of looserock)- Completed.</p> <p>Lime stone filter: Location Kirandul Nala – Work order awarded.</p> <p>In addition to institute recommendation NMDC Limited</p> <p>Geo-coir matting done in front of mechanical workshop in deposit-11C to stabilize the loose soils over an exposed surface area of 2500 sq.m.</p> <p>The over burden dumps will be further strengthened with buttress wall and take all efforts to prevent the flowing of OB into the surrounding area.</p> <p>On behalf of NMDC Limited, local species have been afforested by Chhattisgarh Rajya Van Vikash Nigam Limited and Research and Development Centre, Social Forestry Division Jagdalpur within and outside the mining leases.</p> <p>Apart from plantation, vetiver Grass were planted on exposed surface of waste dumps in 14 ML to control erosion.</p> <p>ICFRE, Dehradun a Premier forest research institute has been engaged in preparation of Environment Management Plan and Rehabilitation for mining leases pertaining to BIOM Kirandul Complex. Work order for estimated values of Rs. 101.74 Lakh was awarded on 04/09/2017 to Institute. The team from ICFRE, Dehradun has visited the ML areas of 14&11C and 14 NMZ from 10.11.17 to 18.11.2017. The suggestive measures and recommendation given by ICFRE will be implemented in mining leases.</p> <p>NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, butters walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1" data-bbox="1220 1344 1864 1481"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table>	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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viii	Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian Bureau of Mines.	The PP has consented to comply with the provision stipulated in this condition.	-Complied-
ix	Drilling and blasting (if any) shall be conducted by using dust extractors / wet drilling	Being complied with It was informed that controlled blasting and wet drilling is being ensured to minimize dust generation.	Wet drilling operation is being carried out with dust extractors mounted drills. This is a continuous process; project is strictly adhered to day-to-day mining operations.
x	Greenbelt development shall be carried out considering CPCB guidelines including selection of plant species in consultation with the local DFO/ Agriculture department. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. Plantation shall be raised in 308.73 ha in the ML area, haul roads OB dump sites, etc. The density of the trees should be around 2500 plants per ha. The company shall involve local people with the help of self help group for plantation programme.	Partially complied with During the site visit it is observed that the PP has undertaken plantation in the blank area through Chhattisgarh State Forest Development Corporation. However, exact area planted under the extant mining lease could not be worked out as the mine wise detail of plantation was not available with the User Agency. As per the relevant documents made available by User Agency has made consolidated detail of afforestation over an area of 1213.76 ha. Mine wise detail of afforestation undertaken by the User Agency was not readily available with the User Agency.	<p>All blank area within the mining leases have been planted with suitable local native species as per conditions stipulated in Forest clearance letter issued by MOEF&CC in 1998/99. Project proponent has continually pursued the above subject matters with local state forest Authority. Details of minutes meeting is enclosed as annexure- A. Cited afforestation has been done by recognized Govt. bodies such as Chhattisgarh Govt. Research and Development Centre, Jagdalpur and Chhattisgarh Rajya Van Vikash Nigam Limited Bhanupur, Chhattisgarh. NMDC Limited has undertaken planted work over an area of 147.758 Ha. within mining lease 14ML, 267.115 Ha. within mining lease 14 NMZ and 662.287 Ha. within the mining lease 11ML. The details of year wise plantation (Area, Types of Species, survival Rate, location plan etc) done by NMDC Limited given in Annexure -4.</p> <p>In this connection monitoring committee was constituted, comprising members Mr. M.R. Suryavanshi, Forest Guard, Konta Social Forest Division, Shri.P.K. Sengupta, Manager (Mining) T&S NMDC Limited, Shri. D.C.S Murthy, Dy. Manager (Finance) NMDC Limited and Shri.S.B. Kushwaha, Dy. Manager (Civil) NMDC Limited for carry out inspection and assuring the percentage of survival of plantation done within the blank area falls within the mining leases. Details of afforestation done by Chhattisgarh Govt. Research and Development Centre, Jagdalpur and Chhattisgarh Rajya Van Vikash Nigam Limited Bhanupur, Chhattisgarh on behalf of Bailadila Iron Ore Mines Kirandul Complex are enclosed as Annexure-5. The blank area falls with the mining leases allocated to NMDC Limited and for protection of mining leases from out interference NMDC had paid Safety Zone Management charges to the forest department. Again we have given work order to Chhattisgarh Rajaya Van Vikash Nigam on 18/05/2017 for development of green belt within the safety zone and fencing of safety zone. In this connection 5,000 saplings have been done within the safety zone and 600 Concrete poles have been brought to sites for installation and fencing. The work is under progress. Mining leases are being kept isolated from human interferences to propagate the successive process of growth of flora and movement of fauna. As per demand note raised by local forest department, we have paid leveling charges of mined out area @ Rs. 10,000/- (Rupees Ten Thousand per Ha) to State Forest Department, Chhattisgarh. Details of payments made are as under:</p>

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		A project level monitoring committee has been constituted which regularly monitors the progress of plantation and safety zone management.																							
xi	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Being complied with The PP has informed that rainwater harvesting is being carried out into the 4 ponds for recharging of ground water. It was also informed that additional 11 of ponds have also been constructed in different villages such as Mandadi, Cholnar, Perpa, Pirnar, Penta and Lendra. However, no detail regarding consultation made with the Central Ground Water Board to augment ground water resources by undertaking construction of ponds has been made available by the PP.	14 Ponds and 51 Dabarries have been developed in near wise villages for rainwater harvesting in addition to 4 Nos. of pond within the mining lease. Apart of the above lower most bench of mining pit 14 and 11C have been developed as surface water runoff collection basin. 14 check dams have been constructed within and outside the mining leases to maintain ground water level. Further, project has taken initiation to construct rain water harvesting pits for all the proposed newly construction buildings.																						
xii	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.	Being complied with It was informed that ground water level and quality is regularly monitored at 30 locations through M/s Space Geo Tech, Bangalore which is an accredited laboratory around BIOM Kirandul Complex. Detail is enclosed at Annexure-III . The PP has also informed that higher levels of Fe were observed at two locations 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.	Ground water level monitoring and quality are being monitored at thirty locations on quarterly basis around BIOM Kirandul Complex through M/s Space Geo Tech. Bangalore within in recognized and accredited laboratory. IIT (ISM) Dhanbad was engaged for testing of ground water quality in hand pumps which are installed by NMDC Limited in nearby villages. NMDC Limited BIOM Kirandul Complex has signed MoU with District administration Dantewada to provide portable drinking water to eight nearby villages. The total estimated cost of scheme is 14.82 Cr. BIOM Kirandul complex has paid 4.93 Cr. to District administration. Apart from above NMDC Limited is going to provide fund to District administration an amount of Rs.277.84 Lakh to install solar dual pumps in 36 nearby village for which administrative approval has been given by NMDC management.																						
xiii	The wastewater from the mine shall be treated to conform to the prescribe standards before discharging into natural stream. The discharged water from the tailing dam shall be regularly monitored and report submitted to the Ministry of Environment & Forests, Central Pollution Control Board and the Chhattisgarh Environment Conservation Board.	Partially complied with It was informed that PP is carrying put monitoring of water discharged from the tailing dam. However, no scientific and effective measures for the water treatment in the mining pits have been undertaken by the PP. Provisions of garland drains, catch drains and siltation ponds, etc has been observed to be very poor resulting into the flowing of silt into the surrounding water resources especially during raining seasons. The PP has been advised to strengthen such measures to arrest silt and to ensure water flowing the lease is laden with minimum slime.	<ul style="list-style-type: none"> ✓ NMDC Limited is mining iron ore at elevation 1029 MSL within the mining leases in the Bailadila hill within the reserve forest. ✓ Adequate capacity of proper drainage system network has been developed within the mining leases. ✓ Surface runoff water within the pits have been routed into lower most bench within the mining pits and lowermost bench of mining pits 14, 11C and have been created into settling basin, where surface runoff from the mines pits routed into the respective settling basins. The mine water is allowed to settle in the basin and clear water discharge toward down ward side. Thereafter water is allowed to filter through buttress walls constructed at the foot of hill. Seasonal water quality monitoring is being carried out through MoEFF& CC recognized laboratory upstream and downstream of buttress walls. Seasonal water quality report is enclosed as Annexure-1 for your kind reference. ✓ Check dam No. 2, 3, 4 and 5 have been constructed across tributaries of Kirandul Nala for arresting surface runoff silts. Surface run off over 																						

			<p>flow of Check Dam No. 2 is routed through ponds constructed at toe of hill (intake well). Where Silts are arrested into ponds and surplus over flow runoff allowed to pass across series of Check Dams No.7, 8, 9 and PWD bridge constructed across Kirandul Nala. Surface runoff water of Check Dam no. 3, 4 and 5 is also routed into Kirandul Nala at upstream side of Check Dam No. 7.</p> <ul style="list-style-type: none"> ✓ Check dam No-1 has been constructed across Malangir Nala to arrest silts flowing with runoff water. ✓ Check Dam No. 6 has been constructed across the stream near Bangali camp to arrest runoff water silt. These Nalas are being regularly monitored and ensuring regular de-silting from tailing dam and different check dams under pre-monsoon preparatory work. The photographs of check dams /bunds and de-silting carried out before monsoon are enclosed as Annexure-3 for kind reference. The check dams are regularly desilted before onset of monsoon to maintain catch basin entrapping capacity and desilted materials are being stacked with protection. <p>Waste dump management: Following preventive measures have been to Check OB as given under:</p> <ul style="list-style-type: none"> ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. ✓ Surface runoff water has been diverted away from waste dumping sides. <p>Recommendations given by Indian Institute of Technology (ISM) Dhanbad, are being implemented in the project. Institute recommended for construction of buttress walls at out let of mining pits and at the toe of waste dumps. The status of work is given below: Deposit-14 (At the toe of Old Waste dump)- Work Completed. Further height of buttes wall is under progress. Deposit- 14 (At the toe of BHQ Waste dump)- Completed at two locations. Deposit -14 (exit of drain at Old waste dump)- Completed. Deposit-11C (At the toe of waste dump)-Under progress Deposit-11B (At the toe of waste dump) – Under progress. Deposit- 11B (At the toe of looserock)- Completed.</p> <p>Lime stone filter: Location Kirandul Nala – Work order awarded. Geo-coir matting done in front of mechanical workshop in deposit-11C to stabilize the loose soils over an exposed surface area of 2500 sq.m. The over burden dumps will be further strengthened with buttress wall and take all efforts to prevent the flowing of OB into the surrounding area. On behalf of NMDC Limited, local species have been afforested by Chhattisgarh Rajya Van Vikash Nigam Limited and Research and Development Centre, Social Forestry Division Jagdalpur within and outside the mining leases. Apart from plantation, vetiver Grass were planted on exposed surface of waste dumps in 14 ML to control erosion.</p> <p>ICFRE, Dehradun a Premier forest research institute has been engaged in preparation of Environment Management Plan and Rehabilitation for mining leases pertaining to BIOM Kirandul Complex. Work order for estimated values of Rs. 101.74 Lakh was awarded on 04/09/2017 to Institute. The team from ICFRE, Dehradun has visited the ML areas of 14&11C and 14 NMZ from 10.11.17 to 18.11.2017. The suggestive measures and recommendation given by ICFRE will be implemented in mining leases.</p>
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			<p>NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, butters walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table> <p>✓ Kirandul Nala has been constructed with RCC to separate surface water runoff from slime. ✓ 23,20,232 cum deposited silt has been desilted from different check dams and Kadampal tailing dam from Calendar year 2006 to November 2017. Retrieved silt is being stacked and protected with measures have been taken within MV Siding Seasonal water quality monitoring is conducted through recognized laboratories of MOEFCC/CPCB. The seasonal water quality report of check dam / check bunds is enclosed as Annexure-1 for kind reference</p>	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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xiv	Prior permission from the competent authority shall be obtained for extraction of ground water if any.	The PP has informed that no groundwater is being used by them in their mining operations. Requirement of water is met through the existing water sources i.e. local perennial nallah.	-Not applicable-										
xv	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles transporting ores shall be covered with a tarpaulin or other suitable enclosures so that no dust particles/ fine matters escape during the course of transportation. No overloading of ores for transportation shall be committed.	Being complied with It was informed that regular pollution checking of 138 vehicles, both light and heavy is being carried out. Majority of transportation of mineral is being carried out through railway rake only small proportion if mineral is transported by road.	It is a continuous and being adhered by the project										
xvi	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests, 5 years in advance of final mine closure for approval.	The PP has consented to this condition. An undertaking in compliance to this condition has been submitted by the PP.	Being complied with.										
B. GENERAL CONDITIONS													
i	No change in the mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.	Being complied with The PP has informed that there is no change in the mining technology and scope of mining.	Noted and being complied.										
ii	No change in the calendar plan	Being complied with											

	including excavation, quantum of mineral iron ore and waste shall be made.	The PP has informed that there is no change in the calendar plan.											
iii	Conservation measures for protection of flora and fauna in the core zone & buffer zone shall be drawn up in consultation with the local forest and wildlife department.	<p>Partially complied with</p> <p>The PP has informed that 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.</p> <p>It appears that the PP has not complied with the provision of this condition in accordance with the provisions stipulated in the extant condition. Compliance of Wildlife Management Plan has been done by the PP after lapse of a period of almost 7 years. Further, no detail pertaining to the undated status if implementation of the Wildlife Management Plan has been made available by the PP.</p>	<p>Forest Management taken by NMDC Limited within core Zone:</p> <ul style="list-style-type: none"> ✓ Green belts have been developed within the core zone to protect habit of flora and fauna. ✓ Natural springs within the core zone have protected. ✓ Illicit entry and tree felling within core zone are prohibited. Two security gates have been established with CISF persons. ✓ Poaching is prohibited within the core zone, such evidence has not noticed as on date within the core zone. ✓ Watch towers are installed within the mining leases and CISF person are deployed within the core zone. ✓ Unauthorized vehicles entry is prohibited within the mining leases. ✓ Ensuring the fire protection along with CISF and local Forest Department. ✓ Two fire tendon and eight fire hydrant have been established within the core zone. ✓ Approach road and haul road are illuminated to prevent accident in mining lease. ✓ Iron ore processing systems/units are enclosed to prevent entry of fauna. Conveyor system are enclosed to minimize impact on flora and fauna within the mining leases. ✓ Regular sprinkling of water on haul road to suppress dust and reduce impact on flora and fauna adjacent to them. ✓ CISF Persons are deployed within the zone. <p>Forest Management taken by NMDC Limited within buffer Zone:</p> <ul style="list-style-type: none"> ✓ BIOM Kirandul complex has paid Rs. 10, 00000/- to local forest division Dantewada (FY-2017-18) for prevention of forest fire. The Details are enclosed. ✓ In the case of emergency fire tendons along manpower deployed to prevent fire in buffer zone. <p>NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada within buffer zone. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, butters walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1" data-bbox="1220 1141 1864 1279"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ✓ Project has constructed 51 small Water tank (Dabris) and 14 pond in Madadi, Cholnar, pernar, pirna, Penda and Lendra for water conservation in buffer zone. ✓ Local resident of buffer zone is using wood poles for fencing of their Badi and agriculture field. Therefore, project has taken preventive measure to reduce the impact on forest, project has sanctioned 3.6 crores in financial year 2016-17 and 2017-18 for barbed wire fencing work. First installment of 72 lakh rupees given to District collector, 	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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			<p>Dantewada. List of barbed wire fencing work for 100 farmers from Kuakonda and Katekalyan block attached as annexure-8</p> <ul style="list-style-type: none"> ✓ Project has distributed 1008 nos.of Bio -stove to near villages to reduce impact on forest in buffer zone. ✓ Proactively, NMDC Limited has prepared lease wise Bio-diversity conservation and Management plan through M/s IBRAD, Kolkata and submitted to CG Forest Dept (WILD Life) Vide letter dated 12/11/2012. After approval of Bio-diversity conservation and Management plan by PCCF (Wild life) Raipur Chhattisgarh NMDC Ltd has deposited Rs. 13,68,82,700/- for Deposit-14/11C Project in "Chhattisgarh CAMPA account" dated 27/01/2017. The payment details are enclosed as Annexure-9 for kind reference. ✓ The PCCF (Wild Life), Raipur has requested by NMDC Limited vide letter dated 15/01/2018 for providing the updated status of wild life management plan of Deposit-14/11C project. The letter is enclosed as Annexure -10for kind reference. ✓ Bio-diversity conservation and management plan has been prepared for NMDC Limited Screening pant-III & NMDC Limited and CMDC Limited (JV)-Deposit -13). The details amount deposited into 'CAMPA' for Bio-diversity and wild life management plan are given below: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Sl.No.</th> <th style="width: 70%;">Particulars</th> </tr> </thead> <tbody> <tr> <td>NMDC Limited (SP-III)</td> <td>Plan approved by CWLW (CG) Fund Rs.15.50 Cr. deposited in CAMPA account of CG.</td> </tr> <tr> <td>NMDC -CMDC Limited (Deposit-13)</td> <td>Plan approved by CWLW (CG) Fund Rs.8.395 Cr. deposited in CAMPA account of CG.</td> </tr> </tbody> </table>	Sl.No.	Particulars	NMDC Limited (SP-III)	Plan approved by CWLW (CG) Fund Rs.15.50 Cr. deposited in CAMPA account of CG.	NMDC -CMDC Limited (Deposit-13)	Plan approved by CWLW (CG) Fund Rs.8.395 Cr. deposited in CAMPA account of CG.
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iv	Four ambient air quality monitoring stations shall 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>Being complied with</p> <p>The PP has informed that Ambient air quality monitoring is being carried out at 15 different locations (fortnightly in 3 seasons other than monsoon) and fugitive dust emission monitoring (monthly in 3 seasons other than monsoon) is being carried out at 20 different locations. Detail of reports pertaining to the AAQM is enclosed as Annexure-iv</p>	It is a continuous and being complied the conditions of MOEFCC						
v	Data on ambient air quality (RPM, SPM, SO ₂ , 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>Being complied with</p> <p>The PP has consented to this condition</p>	Being complied with.						
vi	Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	<p>Being complied with</p> <p>It was observed that preventive/mitigative measures have been taken to control fugitive dust generation from all the sources as per detail given below:</p> <p>I. Dust suppressing system have been installed at loading plant/stock piles.</p>	Being complied with.						

		<p>II. The fugitive dust is suppressed by regular water sprinkling on mines haul roads.</p> <p>III. Plantation is done around the mining area, along mine roads and conveyors for arresting fugitive dust.</p>	
vii	Measures shall 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>Being complied with</p> <p>The PP has informed that appropriate measures have been taken to control the noise levels in working environment and use of PPEs is ensured.</p>	Being complied with.
viii	Industrial wastewater (workshop and wastewater from the mine) shall 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.	<p>Being complied with</p> <p>It is observed that one ETP of 10 KL capacity has been installed at the hilltop for treatment of effluent coming from workshop/garage and analysis of water samples are being carried out in the all four seasons.</p>	Being complied with.
ix	Personnel working in dusty area shall be provided with protective respiratory devices and they shall also be imparted with adequate training and information on safety and health aspects.	<p>Being complied with</p> <p>It was informed that all Persons working in mines and plants have been provided with PPEs and regular trainings related to Environment, Safety and on Health aspect are being given by Training & Safety Department.</p>	Being complied with.
x	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed. Records of the health of the workers shall be maintained.	<p>Being complied with</p> <p>It was informed that periodic Medical Examination is ensured for all workers. For the period April 2015 to September 2015, no. of workers of BIOM Kirandul Complex, tested under Periodic Medical Examination is 382.</p>	Being complied with.
xi	A 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>Complied with</p> <p>A separate Environmental Management Dept. has been established with well qualified and experienced personnel under the control of Jt.GM (Production through DGM (Training Safety & Environment). The organizational chart of environment department is enclosed as Annexure-V</p>	It is proposed to setup Central Environmental Laboratory at BIOM Kirandul Complex. Will be establish 2 years.
xii	The project authorities shall inform to the Regional Office of the Ministry 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.	The PP has consented to this condition.	- Being complied with -
xiii	The funds earmarked for environment protection measures shall be kept in separate account and shall not be diverted for another purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bhopal.	<p>Being complied with</p> <p>It was informed that for the year 2014-15, an expenditure of Rs. 987.74 Lakhs has been incurred for Environment Protection/ Improvement works at BIOM Kirandul Complex. Copy of Environment Statement for the FY 2014-15 is enclosed as Annexure-VI</p>	As per environment statement submitted to MOEFCC, the funds earmarked for environment protection for the year 2016-17 is Rs. 3156 lakhs. The copy is enclosed as Annexure-15 for kind reference.

xiv	The project authorities shall 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.	The PP has consented to this condition	- Being complied with -
xv	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data /information/ monitoring reports.	The PP has consented to this condition	Being complied with -
xvi	A copy of clearance letter will be marked to the concerned Panchayat/ local NGO, if any from whom suggestion/ representation has been received while processing the proposal.	Complied with The PP has informed that a copy of the EC was submitted to the concerned panchayat.	- Being complied with -
xvii	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.	Complied with The PP has informed that compliance of this condition was ensured by the concerned State Government's Department.	-Being complied with -
xviii	The project authorities should advertise at least in two local newspapers 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.	Complied with It was informed that BIOM Kirandul Complex had published environment clearance in two local newspaper Viz- Daik Bhaskar, Raipur Edition (in Hindi) and Hitavda, Raipur Edition (in English) both on 07.10.2007.	- Being complied with -

Annexure-II

Sl. No.	Observation	Reply
(I)	<p>OB Management on 14 ML Deposit 14 comprised two mining leases 14 ML and 14 NMZ. The Addl. PCCF (Central), Regional Office, Bhopal in his inspection report submitted to the MoEF&CC, New Delhi vide letter dated 24.06.2014 had reported flowing of overburden into the forest areas from the mining leases of 14 ML and 11C. During the current Inspection, the representative of the user agency have informed that two sites have been earmarked for OB dump in 14 ML. Out of the two sites dumping is being carried out in over site only while the other site has been stabilized and no further dumping is being done there. However, examination of the stabilization measures by the User Agency revealed that stabilization measures have not been taken appropriately. Top of the OB was observed devoid of any plantation, except grass which might have grown up at its own during the natural course. The soil conservation measures have not been implemented appropriately as the formation of gullies / nalls were seen bifurcating the OB in the dump stated to be stabilized by the user agency. Plantation of trees species on the side of OB facing the forest area was observed while no other measures could be seen indicating the efforts of the UA towards the stabilization of the OB. Similarly, the active dump site of 14 ML revealed that dumping is being done by the user agency without complying with the prescriptions as contained on the environment clearance dated 11.09.2007 regarding maintaining a height of 20 meters and slope of 28 degree. The PP has informed that in case of OB dumping in hilly areas, the same does not hold good and is not possible scientifically also. The UA have also informed that this fact has been reported to the MoEFCC also. However, they could not produce any evidence supporting their claim. The efforts being made by the PP for the construction of a Buttress wall, using the available stone and boulders from the OB, is seen in the active site. It was informed that buttress wall is being constructed to arrest the flow of OB into the forest area. No other measure for stabilization of OB and arresting the flow into the forest area was seen in this. In view of the fact that OB dump has already attained adequate height and slope, the user agency should resort to appropriate scientific methods of</p>	<p>Waste dump management taken by NMDC Limited within mining leases:</p> <ul style="list-style-type: none"> ✓ MoU was signed between Social Forestry Division of Forest, Jagdalpur (C.G) and NMDC Limited Bailadila Iron Ore Project Deposit No.14 & 11C, Kirandul on 25th June, 2001 for plantation of Kanta Bamboo 50,000 Nos in Deposit - 14 waste dumps and teak & mixed plantation 50,000 nos. at BIOP Deposit NO. 14/11C during 2001-02. Copy of MOU is enclosed as Annexure-13 for your kind perusal please. Subsequently biological reclamation was done the Kata bamboo by Social Forestry Division of Forest, Jagdalpur (C.G). ✓ On behalf of NMDC Limited, local species have been afforested by Chhattisgarh Rajya Van Vikash Nigam Limited and Research and Development Centre, Social Forestry Division Jagdalpur within and outside the mining leases. Details are given in Annexure -14 for your kind reference please. <p>Apart from above following preventive measures have been taken to Check flow of OB as given under:</p> <ul style="list-style-type: none"> ✓ Adequate capacity drainage system has been developed within the mining leases for proper routing of surface runoff water. ✓ Surface runoff water has been diverted away from waste dumping sides. ✓ Recommendations given by Indian Institute of Technology (ISM) Dhanbad, are being implemented in the project. Institute recommended for construction of buttress walls at out let of mining pits and at the toe of waste dumps. The status of work are given below: <ul style="list-style-type: none"> • Deposit-14 (At the toe of Old Waste dump)- Work Completed. Further height of buttes wall is under progress. • Deposit- 14 (At the toe of BHQ Waste dump)- Completed at two locations. • Deposit -14 (exit of drain at Old waste dump)- Completed. • Deposit 14: Buttress wall has been constructed at the toe of waste dump to arrest debris. ✓ Apart from plantation, vetiver Grass has been planted on exposed surface of waste dumps in 14 ML to control surface erosion. ✓ Proactively NMDC Limited has given consultancy works to ICFRE, Dehradun a Premier forest research institute for preparation of Environment Management Plan and Rehabilitation plan for mining leases pertaining to BIOM Kirandul Complex and Work order for estimated values of Rs. 101.74 Lakh has been awarded on 04/09/2017 to the Institute. In view the above the team from ICFRE, Dehradun has visited the ML areas of 14&11C and 14 NMZ from 10.11.17 to 18.11.2017. The suggestive measures and recommendation given by ICFRE will be implemented in mining leases. ✓ In addition to above, NMDC Limited have also engaged CIMFR, Dhanbad for slope stability analysis

	<p>bench formation to check flow of OB into the forest area.</p>	<p>of waste dumps. Area experts collected the samples from mines and study is in progress. Recommendation and suggestions given by institutes will be implemented.</p> <p>✓ On behalf of NMDC Limited, local species have been afforested by Chhattisgarh Rajya Van Vikash Nigam Limited and Research and Development Centre, Social Forestry Division Jagdalpur within and outside the mining leases. Details are given in Annexure -14 for your kind reference please.</p> <p>✓ Soil erosion and water conservation measures taken by Local Forest Dept. on behalf of NMDC Limited BIOM Kirandul Complex outside the mining leases.</p> <p>NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, butters walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1" data-bbox="808 758 1430 894"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table> <p>The over burden dumps will be further strengthened with buttress wall and all efforts will be taken to prevent the flow of OB into the surrounding area.</p>	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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(II)	<p>OB Management of 11 ML</p> <p>The effort of UA to arrest the flowing of OB into the forest areas were seen in the form of Buttress wall only. It is informed that for want of any effective measures of implemented by the User Agency for OB stabilization, in the year 2006, incessant rains during monsoon coupled with inadequate measures for stabilization of OB, caused the sliding of large mass of OB into the forest area destroying the plantation and regeneration in the forest area of approximately 21.86 has. Subsequently, the State Forest Department attempted to rejuvenate the area by planting trees species at the cost of PP.</p> <p>It was also observed that area earmarked for OB dump of 11 ML mining lease is also being used for OB dumping of 14 NMZ lease which appears to not permissible. OB dump of 11 ML has attained a height of more than 30 meters with slope of approximately of between 50 to 60 degree. Through the PP has now started bench formation yet there are likely chances, in case of incessant rains occurs, the same may again flows into the forest as the buttress wall is insufficient arrest the large mass which may detach/slide from the OB dump.</p> <p>Scientific management of OB is an important activity which the UA should implement in consultation with the institute of repute and in accordance with</p>	<p>Waste dump management taken by NMDC Limited within mining lease. Slope of waste dump has been modified and stable benches have been made in large mass of waste dump to prevent sliding/slope failure.</p> <p>✓ At the toe of waste dump of Deposit -11C thee layer of protection has been taken as given below:</p> <p>1st layer protection: Earthen embankment has made at the toe of water dump-11C to arrest erosion from waste dump body.</p> <p>2nd layer protection: Adequate length, width and height buttress wall has been constructed downstream side of earthen bund in series.</p> <p>3rd layer protection: Deposit-11C (At the toe of waste dump)-Under progress.</p> <p>✓ Geo-coir matting has been done over loose rock an area of 2500sq.m. in front of 11C service centre.</p> <p>✓ NMDC Limited have also engaged CIMFR, Dhanbad for slope stability analysis of waste dumps. Area experts collected the samples from mines and study is in progress. Recommendation and suggestions given by institutes will be implemented.</p> <p>✓ ICFRE, Dehradun a Premier forest research institute has been engaged in preparation of Environment Management Plan and Rehabilitation for mining leases pertaining to BIOM Kirandul Complex. Work order for estimated values of Rs. 101.74 Lakh was awarded on 04/09/2017 to Institute. The team from ICFRE, Dehradun has visited the ML areas of 14&11C and 14 NMZ from 10.11.17 to 18.11.2017. The suggestive measures and recommendation given by ICFRE will be implemented in mining leases.</p> <p>Soil erosion and water conservation measures taken by Local Forest Dept. on behalf of NMDC Limited BIOM Kirandul complex outside the</p>										

	<p>the relevant conditions invariably stipulated in the environment and forest clearances accorded by the Ministry. The PP has informed that recently they have awarded a study to the ICFRE, Dehradun which inter-alia includes suggestive measures for the OB stabilization.</p>	<p>mining leases. NMDC Limited has undertaken soil erosion control and water conservation measures through Local Forest Division Dantewada. The works includes construction of Trench excavation construction of brush wood Check bund, Loose boulder check dams, buttress walls and regeneration grass and shrubs outside mining leases. The amount paid to CG Forest Dept. for soil erosion control and water conservation are as below:</p> <table border="1" data-bbox="808 426 1430 562"> <thead> <tr> <th>Year</th> <th>Amount (In Rs.)</th> </tr> </thead> <tbody> <tr> <td>2009-10</td> <td>1.4 Cr.</td> </tr> <tr> <td>2012-13</td> <td>1.035 Cr.</td> </tr> <tr> <td>2013-14</td> <td>2.19 Cr.</td> </tr> <tr> <td>2017-18</td> <td>2.19 Cr.</td> </tr> </tbody> </table> <p>The over burden dumps will be further strengthened with buttress wall and all efforts will be taken to prevent the flow of OB into the surrounding area.</p>	Year	Amount (In Rs.)	2009-10	1.4 Cr.	2012-13	1.035 Cr.	2013-14	2.19 Cr.	2017-18	2.19 Cr.
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3.	<p>Lease wise details of the area earmarked for OB dump and status of approval under FCA, 1980 The details earmarked for dumping of overburden and status of grant of FC is given in table: From this, it can be ascertained that the user agency has been using area for dumping in unauthorized in mining lease of 11 ML. Further the user agency has not earmarked any area for OB dumping in 14 NMZ lease and OB generated from these lease are being dumped into the 11 ML. The representative of the user agency, leases where approval for dumping is not available under FCA, 1980, the same will be obtained and a proposal in this regard will be submitted to the State Government.</p>	<p>In this respect, as per FC of 11ML an area of 180.320 Ha has been approved for mining (already broken area) which includes mining activities, roads, waste dumps, statutory building and area to be broken etc. Deposit-14/11C has obtained common Environment Clearance from MoEF&CC vide letter no. J-1105483/2007-IA. II (M), Government of India, Ministry of Forest and Environment Dated 11.09.2007 for mining leases 14 ML, 14 NMZ and a part of 11ML of 106.412 ha. Waste generated in Deposit-11C is being commonly managed within Mining lease 14 NMZ and 11ML. In order to comply the conditions of MOEFCC, Project has submitted the applications for change in land use of Mining Lease -14, Mining Lease-14 NMZ and 11ML to DFO, Dantewada. The proposal is at State Level [Additional PCCF(LM)] for approval of MOEFCC, New Delhi.</p>										