



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
रॉ मैटेरियल्स डिवीजन
RAW MATERIALS DIVISION

Ref No: - BOM/ENV/5.1/HD-2510

Date:-25/10/2018

To,

Additional Principal Chief Conservator of Forests (C),
Ministry of Environment, Forest and Climate Change,
Regional Office (EZ),
A/3, Chandrasekharpur,
Bhubaneswar – 751023

Sub: Six monthly status of compliance to the conditions stipulated in the Environmental Clearance granted by MoEFCC for 12 MTPA Iron Ore production from 5.10 sq. Miles ML vide letter no. J-11015/418/2008-IA.II(M) dated 21/12/2012 for the period ending APR'18-SEP'18.

Sir,

Please find enclosed herewith the Six monthly compliance report for the period APR'18-SEP'18 with respect to the conditions stipulated by GoI, MoEF, New Delhi, in the Environmental Clearance grant order of Bolani Ores Mines for the production of 12 MTPA Iron Ore from 5.10 sq Miles ML vide ministry's letter no. J-11015/418/2008-IA.II(M) dated 21/12/2012.

Thank you,

Yours faithfully,

[Signature]
25.10.18
General Manager
Bolani Ores Mines

[Signature]
25/10/18
PS to APCCF (Central)
GOI, M/o Env't. & Forests
Eastern Regional Office
Bhubaneswar-751023

Encl: As above

Copy:

1. Director, IA Division, MoEF&CC, GOI, Indira Paryavaran Bhavan, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. In-charge, Eastern Zone, CPCB, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107 (W. B.)
3. The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118, Nilkantha Naga, Unit – VIII, Bhubaneswar – 751 012, Odisha

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड, रॉ मैटेरियल्स डिवीजन, बोलानी अयस्क खदान, पोस्ट : बोलानी - 758037 जिला - क्यौझर, उड़ीसा
Steel Authority of India Ltd. Raw Materials Division, Bolani Ores Mines, PO. : Bolani - 758037, Dist : Keonjhar, Odisha
दुराभाष / Telephone : 06767 - 260211 (O) फैक्स / Fax : 06767-260172, Mobile : +91 8986881005
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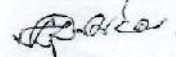
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General Manager
Bolani Ores Mines



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Six Monthly

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STEEL AUTHORITY OF INDIA LIMITED
RAW MATERIALS DIVISION
BOLANI ORES MINES
BOLANI- 758037

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I.	ENVIRONMENTAL CLEARANCE IS SUBJECT TO OBTAINING CLEARANCE UNDER THE "WILDLIFE PROTECTION" ACT FROM THE COMPETENT AUTHORITY, AS APPLICABLE.	PROVISION OF "WILDLIFE PROTECTION" ACT IS NOT ATTRACTED TO THE PROJECT AS THERE ARE NO "WILDLIFE SANCTUARIES" OR OTHER PLACES SPECIFIED IN THE ACT WITHIN 3.5 KM RADIUS OF THE PROJECT.
II.	THE PROJECT PROPONENT SHALL OBTAIN CONSENT TO ESTABLISH FROM THE STATE POLLUTION CONTROL BOARD, AIRS AND EFFECTIVELY IMPLEMENT ALL THE CONDITIONS STIPULATED THEREIN.	CONSENT TO ESTABLISH FOR EXPANSION OF THE MINE TO PRODUCE 500 MT WAS GRANTED BY DISHA ; STATE POLLUTION CONTROL BOARD VIDE GOVT ORDER DATED 14.11.2016 / CONDITIONS STIPULATED IN THE CONSENT TO ESTABLISH ARE COMPLIED ; SUBSEQUENTLY CONSENT TO OPERATE WAS GRANTED VIDE LETTER GOVT ORDER DATED 16.11.2016, "TAKING INTO ACCOUNT" FROM AIRS ; STATE POLLUTION CONTROL BOARD FOR THE PRODUCTION OF 500 MT OF IRON ORE AND IS VALID TILL 15.11.2021.
III.	FOREST CLEARANCE FOR "HAZARDOUS SAFETY ZONE" HAS NOT BEEN OBTAINED BY THE PROJECT PROPONENT. HIS ENVIRONMENTAL CLEARANCE SUBJECT TO THE GRANT OF FOREST CLEARANCE FOR DIVERSION OF "HAZARDOUS SAFETY ZONE" WITHIN ONE YEAR.	FOREST CLEARANCE FOR "HAZARDOUS SAFETY ZONE" HAS BEEN GRANTED BY GOVT ORDER VIDE GOVT ORDER DATED 14.11.2016 / COPY OF THE SAME WAS ENCLOSED WITH SIX MONTHLY COMPLIANCE REPORT FOR THE PERIOD PRIOR TO ; EPRI VIDE OUR LETTER GOVT ORDER DATED 16.11.2016, "TAKING INTO ACCOUNT" /
IV.	THE COMPANY SHALL SUBMIT WITHIN 1 MONTHS THEIR POLICY TOWARDS CORPORATE ENVIRONMENT RESPONSIBILITY WHICH SHOULD INTER ALIA PROVIDE FOR "1" STANDARD OPERATING PROCESS/ PROCESS TO BRING INTO FOCUS ANY INFRINGEMENT/ DEVIATION/ VIOLATION OF THE ENVIRONMENTAL OR FOREST NORMS/ CONDITIONS. "II" HIERARCHICAL SYSTEM OR ADMINISTRATIVE ORDER OF THE COMPANY TO DEAL WITH THE ENVIRONMENTAL ISSUES AND FOR ENSURING COMPLIANCE WITH THE +) CONDITIONS AND "III" SYSTEM OF REPORTING OF NON-COMPLIANCES / VIOLATIONS OF ENVIRONMENTAL NORMS TO THE (BOARD OF DIRECTORS OF THE COMPANY AND / OR SHAREHOLDERS OR STAKEHOLDERS).	THE POLICY TOWARDS CORPORATE ENVIRONMENTAL RESPONSIBILITY INCLUDING DETAILS OF SET UP WAS SUBMITTED TO MINISTRY VIDE OUR LETTER NO : 5, DATED 16.11.2016 / COPY OF THE SAME WAS ENCLOSED WITH SIX MONTHLY COMPLIANCE REPORT FOR THE PERIOD PRIOR TO ; EPRI VIDE OUR LETTER NO : 5, DATED 16.11.2016, "TAKING INTO ACCOUNT" / ;) 14 HAS ALWAYS BEEN AN ENVIRONMENTALLY CONSCIOUS AND RESPONSIBLE COMPANY. "AY BACK IN 1980" IT WAS A PIONEER IN ADOPTING A CORPORATE ENVIRONMENTAL POLICY IN VIEW OF THE RAPID TECHNOLOGICAL ADVANCEMENTS IN THE PAST TWO DECADES AND GROWING STRINGENCY OF REGULATORY REQUIREMENTS ;) 14 HAS REVISED ITS ENVIRONMENTAL POLICY AND MADE "CORPORATE ENVIRONMENTAL POLICY" AND RESPONSIBILITY WHICH IS UNDER IMPLEMENTATION AND COPY OF THE SAME HAD BEEN ATTACHED IN COMPLIANCE REPORT FOR THE PERIOD OF 7 YEARS TO 5 YEARS SUBMITTED VIDE LETTER NO : 5, DATED 16.11.2016, "TAKING INTO ACCOUNT" /

V.	<p>THE MINING OPERATION SHALL BE RESTRICTED TO ABOVE GROUND WATER TABLE AND IT SHALL NOT INTERSECT GROUNDWATER TABLE. IN CASE OF WORKING BELOW THE GROUND WATER TABLE, PRIOR APPROVAL OF THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE / GOVT. AUTHORITY SHALL BE OBTAINED FOR WHICH A DETAILED HYDROGEOLOGICAL STUDY SHALL BE CARRIED OUT.</p>	<p>THE PRESENT MINING OPERATIONS HAVE BEEN RESTRICTED TO LEVELS ABOVE GROUND WATER TABLE IN ALL THE PITS WITHIN THE LEASEHOLD AREA. THE / ROUND ? AFTER ?ABLE IN THE LEASE AREA IS 21.1M / 5 ; 4 / ? . HEREAS THE PRESENT WORKING DEPTH AT THE MINES VARIES FROM 16.1M TO 25.1M / 5 ; 4 / . THE MINES WILL NOT BE DUG DEEPER THAN THE CURRENT DEPTH OF 25.1M / 5 ; 4 TILL FURTHER.</p> <p>PRIOR APPROVAL OF THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE / GOVT. AUTHORITY WILL BE OBTAINED AFTER CONDUCTING A DETAILED HYDROGEOLOGICAL STUDY PRIOR TO WORKING BEYOND ULTIMATE DEPTH OF 25.1 / 5 ; 4 IF ANY DURING SUBSEQUENT PLAN PERIODS AS PERDULY APPROVED MINING PLAN.</p>
VI.	<p>MITIGATION MEASURES TO CONTROL DUST LEVELS SHALL CONTINUE TO BE IMPLEMENTED AND AIR QUALITY DATA WILL ALSO BE COLLECTED DURING OPERATION OF THE MINES. THE DATA SO COLLECTED SHALL BE ANALYZED TO SEE THE EFFECTIVENESS OF THE MITIGATION MEASURES IMPLEMENTED. (BASED ON THE SAME, ADDITIONAL SAFEGUARD MEASURES, AS MAY BE REQUIRED SHALL BE IMPLEMENTED IN THE PROJECT).</p>	<p>MITIGATION MEASURES ARE REGULARLY IMPLEMENTED TO CONTROL THE : ; 85 LEVELS IN ORDER TO REDUCE THE : ; 85 LEVELS. ;) 14.1 * CLANI 7 RE MINES HAS COMPLETED THE IMPLEMENTATION OF FOLLOWING MITIGATION MEASURES &</p> <p>"A. TRANSPORTATION THROUGH COVERED CONVEYORS &) ROUND 21 FIFTY METERS OF COVERED CONVEYORS FROM FEED HOPPER AT MINES TO PRODUCT DISPATCH POINT."</p> <p>"B. * AG FILTER SYSTEM EQUIPPED AT SECONDARY CRUSHER HOUSING"</p> <p>"C. HIGH PRESSURE WATER SPRINKLING AT FEED HOPPER AT MILL & CRUSHANT"</p> <p>"D. , RY . CG , DUST SUPPRESSION INSTALLED IN THE " FIFTY < 80 + RUSHING " ; GREENING PLAN."</p> <p>"E. : GRAVELLED AND BLACKTOPPED ROADS INSIDE TOWNSHIP AND PERIPHERAL VILLAGES AND : ROAD FROM * CLANI TO 3 RD * RIDGE WITHIN " 100 SQ. KM 5.4"</p> <p>"F. 5000 NOS. OF SAPLINGS WERE PLANTED OVER AN AREA OF 1 HA WITHIN THE LEASEHOLD AREA AT A COST OF : 51 FIFTY LAKHS."</p> <p>"G. 8++ ROAD HAS BEEN LAID OUT AT A COST OF : 51 FIFTY LAKHS."</p> <p>THE PHOTOGRAPHS SHOWING ABOVE MITIGATION MEASURES ARE ATTACHED AS ' ANNEXURE ' : 1 : REGULAR MONITORING OF AMBIENT AIR QUALITY IS UNDERTAKEN AND DATA ANALYZED.</p>
VII.	<p>THE BIOLOGICAL SURVEY SHALL BE REPEATED DURING 4 OCTOBER * DECEMBER AND MID 2 MAY MONTH TO SEE THE EXISTENCE OF WILDLIFE CORRIDORS. IF ANY (BASED ON THE SAME, NECESSARY WILDLIFE) CONSERVATION</p>	<p>6 NECESSARY BIOLOGICAL SURVEYS WERE CONDUCTED BY EXPERT COMMITTEES AND ? FIELD LIFE - EXPERTS AND BASED ON THE SAME ; THE ; SPECIFIC ? WILDLIFE CONSERVATION PLAN HAS BEEN PREPARED AND APPROVED BY THE STATE . FOREST AND ? WILDLIFE , DEPARTMENT VIDE ORDER NO 21 FIFTY ? 4 " + ; ; 81</p>

	PLAN AS MAY BE REQUIRED SHALL BE PREPARED AND IMPLEMENTED IN CONSULTATION WITH THE STATE, FOREST AND WILDLIFE DEPARTMENT	ESTIMATE, TOTAL FINANCIAL OUTLAY OF : ₹ 50 LAKHS IS IMPLEMENTED BY COMPANY RESOURCES; 14/
VIII.	THE BIOLOGICAL SURVEY SHALL ALSO BE UNDERTAKEN TO IDENTIFY THE TREES WITH ORCHIDS. IF ANY SUCH TREES, SO IDENTIFIED SHALL BE PROTECTED AND IF NEED BE, THESE TREES MAY BE RELOCATED.	STUDY REVEALED NO WILDLIFE CORRIDORS WITHIN THE MINING LEASE AREA
IX.	THE PROJECT PROPONENT SHALL ENSURE THAT NO NATURAL WATER COURSE AND/OR WATER RESOURCES SHALL BE OBSTRUCTED DUE TO ANY MINING OPERATIONS	PRELIMINARY SURVEY OF THE AREA TO IDENTIFY THE TREES WITH ORCHIDS HAS BEEN CONCLUDED, DETAILED STUDY OF THE AREA ALONGWITH ACQUAINTANCE WITH LOCAL DWELLERS FOR FURTHER ENQUIRY REGARDING THE DISTRIBUTION OF ORCHIDS IF ANY WITHIN THE LEASE AREA IS PLANNED IN OCTOBER. THE REPORT OF DETAILED SURVEY SHALL BE SUBMITTED TO GOVT. FOR ENDORSEMENT
X.	THE TOP SOIL, IF ANY, SHALL TEMPORARILY BE STORED AT EARMARKED SITE ONLY AND SHOULD NOT BE KEPT UNUTILIZED FOR A PERIOD MORE THAN THREE YEARS. THE TOPSOIL SHOULD BE USED FOR LAND RECLAMATION AND PLANTATION.	THE TOP SOIL EXCAVATED TILL DATE HAS BEEN UTILIZED FOR RECLAMATION & REHABILITATION OF DUMPS. 15% OF TOP SOIL WAS EXCAVATED DURING PRELIMINARY DEVELOPMENT IN LEASE AREA. MINER PIT TOWARDS 6% END. THE ENTIRE QUANTITY OF TOPSOIL WAS UTILIZED FOR PLANTATION CARRIED OUT DURING FEBRUARY.
XI.	THE WASTE (URDEN) GENERATED DURING THE MINING OPERATION SHALL BE STACKED AT EARMARKED DUMP SITES ONLY AND SHOULD NOT BE KEPT ACTIVE FOR LONG PERIOD. IN CRITICAL AREAS, USE OF GEO TEXTILES SHALL BE UNDERTAKEN FOR STABILIZATION OF DUMP. MONITORING AND MANAGEMENT OF REHABILITATED AREAS SHOULD CONTINUE UNTIL THE VEGETATION BECOMES SELF-SUSTAINING. COMPLIANCE STATUS SHOULD BE SUBMITTED TO THE MINISTRY OF ENVIRONMENT, FOREST AND ITS REGIONAL OFFICE LOCATED AT CHHANNESWARON SIX MONTHLY BASIS	WASTE GENERATED FROM THE MINES IS DUMPED AT EARMARKED SITES ONLY. THE DETAILS ARE AS FOLLOWS: I. WASTE GENERATED FROM MINING AREA IS DUMPED AS BACKFILLING INSIDE THE QUARRY IN THE SOUTHERN PART. PLANTATION OF 15 TREES HAS BEEN UNDERTAKEN ON 2 HECTS OF THIS BACKFILLED AREA. II. WASTE GENERATED FROM OTHER MINING AREAS IS DUMPED ON THE EXISTING EARMARKED ACTIVE WASTE DUMPS AS PER THE MINING PLAN APPROVED BY INDIAN BUREAU OF MINES WHICH ARE ADJACENT TO THE RESPECTIVE QUARRIES. AFTER COMPLETION OF THE DUMPING STABILIZATION MEASURES COULD BE UNDERTAKEN. III. THE ACTIVE WASTE DUMPS OF LEASE AREA / MINING AREA AND

	<p>SANPOSH HAVE BEEN PROVIDED WITH : EROSION ? ALL AND NECESSARY TERRACING FOR STABILITY/</p> <p>IV. <HE 7 LD 7 * , UMPS OF . 1) REA AND , HAVE BEEN REHABILITATED BY PLANTATION/ PLANTATION OF AROUND 11 * FIFIF NOS PLANTS HAVE BEEN COMPLETED AS YET / AP FILLING ACTIVITIES ARE ALSO UNDERTAKEN BY SUITABLE REPLACEMENT OF SPECIES WITH LOW GROWTH RATE/</p> <p>V. IN THE IDENTIFIED CRITICAL AREAS SUCH AS . INES DUMP NEAR , 01! LOCATION AND 7 LD . INES , UMP NEAR " fifi <80 ~ AN AREA OF 11 * FIFIF SQ METERS HAS BEEN COVERED WITH / EO <EXTILES AND >ETIVER SLIPS PLANTATION OVER AN AREA OF 1 * FIFIF SQ M HAS BEEN DONE UNDER THE CONSULTANCY OF 11< 3 HARAPUR OVER 7 LD . INES , UMP FOR SLOPE STABILIZATION/</p> <p>VI. ; EEDS OF NATIVE GRASS SPECIES OF <HYSANOLAENA 5 AXIMA AND ; TLOSANTHES OAMATA HAVE BEEN BROADCASTED AND NATIVE GRASSES HAVE BEEN PLANTED OVER , AREA 7 * DUMP SLOPE FOR STABILIZATION/</p> <p>VII. <TRANSPLANTATION OF STUMPS OF DEEPI ROOTED NATIVE GRASS SPECIES "<HYSOLAENA 5 AXIMA WAS CARRIED OUT OVER 11 HA OF DUMP SLOPE AREA OF , AREA AND SANPOSH DUMPS/</p> <p><HE PHOTOGRAPHS OF ABOVE MEASURES ARE ATTACHED AS ' NNEXURE'; 1 + COMPLIANCE STATUS IN THIS REGARD IS SUBMITTED TO THE 5 MINISTRY OF - NVRONMENT , OREST ' + CLIMATE + HANCE AND ITS : EGIONAL 7 FICE LOCATED AT * HUBANESWAR IN THE SIX MONTHLY COMPLIANCE REPORTS/</p>
<p>XII.) ATCH DRAINS AND SILLATION PONDS OF APPROPRIATE SIZE SHALL BE CONSTRUCTED TO ARREST SILT AND SEDIMENT FLOWS FROM MINE WORKING, SOIL 4 (AND MINERAL DUMPS. 9HE WATER SO COLLECTED SHOULD BE UTILIZED FOR WATERING THE MINE AREA, ROADS, GREEN BELT DEVELOPMENT ETC. 9HE DRAINS SHOULD BE REGULARLY DE-SILTED PARTICULARLY AFTER MONSOON AND MAINTAINED PROPERLY.</p> <p>- ARAND DRAIN OF APPROPRIATE SIZE, GRADIENT AND LENGTH SHALL BE CONSTRUCTED FOR BOTH MINE PIT AND SUMP CAPACITY SHOULD BE DESIGNED KEEPING žfř SAFETY</p>	<p>) SCHEME FOR MINIMIZING SOIL EROSION AND MINIMIZING CHOKING OF STREAMS AND SOIL CONSERVATION/ TAKING INTO CONSIDERATION THE RAINFALL DATA AND MAX/ DISCHARGE/ HAS BEEN PREPARED IN CONSULTATION WITH , IVISIONAL . OREST 7 FICER 3 EONJHAR AND : EGIONAL + HIEF + ONSERVATOR OF . ORESTS : OURKELA FOR IMPLEMENTATION IN 8HASES/</p> <p>) S PER THE SCHEME/ / ARAND DRAINS OF 1 žřf METERS HAVE BEEN CONSTRUCTED ALL ALONG THE 7 * DUMPS TO PREVENT FLOW OF RUNOFF DIRECTLY INTO THE NATURAL STREAM/ f# 6 OS/ OF SEDIMENTATION PITS HAVE BEEN CONSTRUCTED AT THE CORNER OF THE GARAND DRAINS TO TREAT RUNOFF WATER EVEN DURING PEAK RAINFALL AND THEY ARE DE-SILTED REGULARLY BEFORE AND AFTER MONSOON/</p>

	<p>MARGIN OVER AND ABOVE PEAK SUDDEN RAINFALL "BASED ON 5 YEARS DATA" AND MAXIMUM DISCHARGE IN THE AREA ADJOINING THE MINE SITE. DUMP CAPACITY SHOULD ALSO PROVIDE ADEQUATE SETTLING OF SLIT MATERIAL. SEDIMENTATION PITS SHOULD BE CONSTRUCTED AT THE CORNERS OF THE GARAND DRAINS AND DE-SILTED AT REGULAR INTERVALS.</p>	<p>URING) PRIEST; EPIEST THE FOLLOWING JOBS HAVE BEEN UNDERTAKEN FOR MITIGATING SLIT GENERATION FROM THE MINES:</p> <ul style="list-style-type: none"> I) CONTOUR BUNDH WITH DRAIN HAS BEEN CONSTRUCTED ALONG APPROACH ROAD TO MINES AT A COST OF: ₹ 2.5 LAKHS II) RETAINING WALL WITH GARAND DRAIN HAS BEEN PROVIDED NEAR * CLANI BASTI AT A COST OF: ₹ 1.5 LAKHS TO PREVENT SLIT OVERFLOW ONTO ROADS III) NETWORK OF : ETAINING WALLS GARAND DRAINS CULVERTS DRAINS AND SETTLING PITS WERE CONSTRUCTED AT A COST OF: ₹ 2.5 LAKHS <p>PHOTOGRAPH OF / ARAND DRAIN SETTLING PONDS ALONG TOEWALL AND ; EDIMENTATION PIT ARE ATTACHED AS ' NNEXURE'; /1 ? ATER COLLECTED IN SETTLING PONDS IS REUTILIZED FOR WATERING THE PLANTATION</p>
XIII	<p>* DIMENSION OF RETAINING WALL AT THE TOE OF DUMPS AND 4 (BENCHES WITHIN THE MINE TO CHECK RUN OFF AND SITUATION SHOULD BE BASED ON THE RAINFALL DATA</p>	<p>, DIMENSIONS OF RETAINING WALLS AT THE TOE OF DUMPS AND 7 * BENCHES WITHIN THE MINE TO CHECK RUN OFF AND SITUATION ARE BASED ON THE RAINFALL DATA</p> <p><HE DETAILS OF EXISTING RETAINING WALLS AROUND THE 7 * DUMPS AND STOCKPILES ARE ATTACHED AS' NNEXURE' ///</p>
XIV	<p>PLANTATION SHALL BE RAISED IN AN AREA OF 11.2# HA INCLUDING A 12M WIDE GREEN BELT IN THE SAFETY ZONE AROUND THE MINING LEASE BY PLANTING THE NATIVE SPECIES AROUND 4 (DUMPS, RECLAIMED AREA, MINE BENCHES, ALONG THE ROADS ETC. IN CONSULTATION WITH THE LOCAL *, 4/ ' GRICULTURE * EPARTMENT. THE DENSITY OF THE TREES SHOULD BE AROUND 1250 PLANTS PER HECTARE. - REENBELT SHALL BE DEVELOPED ALL ALONG THE MINE LEASE AREAS IN A PHASED MANNER AND SHALL BE COMPLETED WITHIN FIRST FIVE YEARS</p>	<p><ILL ; EPTEMBER 1 FILE\$ 1.12 LAKH SAPLINGS HAVE BEEN PLANTED WITHIN MINES PREMISES TO RECLAIM AND REHABILITATE AN AREA OF 1.12# HA WHICH INCLUDES THE SAID 11.2# HA DEGRADED FOREST LAND AND 1.12 M STRIP SAFETY ZONE AREA WITH AVERAGE DENSITY OF 11250 "APPROX. PLANTS PER HECTARE WITHIN 1.12 SQ. MILES 5.4 OF * 7.5/ <HE SAID AREA INCLUDES ; AFETY @ ONE 7 * DUMPS) VENUE PLANTATION AND , EGRADED . OREST LANDS' <HE COST OF PLANTATION AMOUNTS TO: ₹ 1.12 LAKHS</p> <p><HE PHOTOGRAPHS OF PLANTATION CARRIED OUT AT VARIOUS LOCATIONS ARE ATTACHED AS' NNEXURE'; /1</p>
XV	<p>+ EFFECTIVE SAFEGUARD MEASURES SUCH AS REGULAR WATER SPRINKLING SHOULD BE CARRIED OUT IN CRITICAL AREAS PRONE TO AIR POLLUTION AND HAVING HIGH LEVELS OF PARTICULATE MATTER SUCH AS HAUL ROAD, AROUND CRUSHING AND SCREENING PLANT, LOADING AND UNLOADING POINT AND TRANSFER POINTS. + EXTENSIVE WATER SPRINKLING SHALL BE CARRIED OUT ON HAUL ROADS. IT SHOULD BE ENSURED THAT THE</p>	<p>: EGULAR WATER SPRINKLING IS CARRIED OUT ON THE HAUL ROADS, LOADING, UNLOADING POINTS FOR EFFECTIVE DUST SUPPRESSION. FIXED WATER SPRINKLERS OF 15M LENGTH ARE OPERATED AT CRITICAL AREAS SUCH AS 4 LOADING POINT OF 15M <80 PLANT AND APPROACH ROAD TO MINES GATE/ 1N ADDITION TWO 1534 AND THREE 1534 MOBILE WATER TANKERS ARE SPRINKLING WATER REGULARLY FOR EFFECTIVE DUST SUPPRESSION</p> <p>) MBIENT) IR 9 QUALITY IS MONITORED REGULARLY AND THE RESULTS ARE WELL WITHIN THE NORMS PRESCRIBED IN THE CORE</p>

	<p>AMBIENT AIR QUALITY PARAMETERS CONFORM TO THE NORMS PRESCRIBED BY THE CENTRAL POLLUTION CONTROL BOARD IN THIS REGARD.</p>	<p>ZONE AREA: THE 85th PERCENTILE VALUES RANGE FROM 11.98# TO 13.34" [GFM] AND 85th PERCENTILE VALUES RANGE FROM 11.54# TO 11.54" [GFM]. AMBIENT AIR QUALITY IN AND AROUND THE MINES IS GIVEN IN THE ANNEXURE.</p>
XVI.	<p>THE PROJECT AUTHORITY SHOULD IMPLEMENT SUITABLE CONSERVATION MEASURES TO AUGMENT GROUND WATER RESOURCES IN THE AREA IN CONSULTATION WITH THE REGIONAL DIRECTOR, CENTRAL-ROUND WATER BOARD.</p>	<p>THE REPORT OF TECHNICAL FEASIBILITY STUDY ON: AIR WATER HARVESTING SYSTEM PLAN FOR ROUND WATER RECHARGES PREPARED BY THE CONSULTANT HAS BEEN SUBMITTED TO +/ ? * HUBANESWAR VIDE OUR LETTER NO. 5/1/15/15, 15/15/15/15 FOR TECHNICAL APPROVAL OF THE SAME AFTER WHICH THE SUGGESTED LONG TERM MEASURES BE EXPEDITIOUSLY IMPLEMENTED AND A TIME BOUND ACTION PLAN OF THE SAME WILL BE SUBMITTED TO THE MINISTRY.</p> <p>THE FOLLOWING STRUCTURES HAD BEEN CONSTRUCTED FOR: AIR WATER HARVESTING ON THE ONSET OF MONSOON: 1. SINKING JOBS OF NALLAH NEAR SETROL BUMP; AIRWAY SIDING CULVERT AND AT *ALAGODA BASIN HAVE BEEN TAKEN UP AT: 5 LAKHS FOR WATER STORAGE CAPACITY ENHANCEMENT AND THEREBY AIDING GROUND WATER RECHARGE.</p> <p>8 PHOTOGRAPHS OF THE MEASURES UNDERTAKEN AT * 7 5 ARE ENCLOSED AS ANNEXURE; 1/1</p>
XVII.	<p>REGULAR MONITORING OF GROUND WATER LEVEL AND QUALITY SHOULD BE CARRIED OUT IN AND AROUND THE MINES LEASE BY ESTABLISHING A NETWORK OF EXISTING WELLS AND INSTALLING NEW PIEZOMETERS DURING THE OPERATION. THE PERIODIC MONITORING AT LEAST FOUR TIMES IN A YEAR: 5 FEBRUARY MONSOON " APRIL 2 MAY MONSOON " AUGUST, POST MONSOON " 3 NOVEMBER AND WINTER " JANUARY " & ONCE IN EACH SEASON SHALL BE CARRIED OUT IN CONSULTATION WITH THE STATE - ROUND WATER BOARD. CENTRAL - ROUND WATER BOARD AUTHORITY AND THE DATA THUS COLLECTED MAY BE SENT REGULARLY TO MINISTRY OF ENVIRONMENT AND FORESTS AND ITS REGIONAL OFFICE, (HUBANESWAR) CENTRAL - ROUND WATER BOARD. CENTRAL - ROUND WATER BOARD AUTHORITY AND REGIONAL DIRECTOR, CENTRAL - ROUND WATER BOARD. IF AT ANY STAGE, IT IS OBSERVED THAT THE GROUNDWATER TABLE IS GETTING DEPLETED DUE TO THE MINING ACTIVITY & NECESSARY CORRECTIVE MEASURES SHALL BE CARRIED OUT.</p>	<p>REGULAR MONITORING OF GROUND WATER LEVEL AND QUALITY IS CARRIED OUT IN AND AROUND 1.5 KM OF * CLANI 7 RES 5 INES FROM A NETWORK OF EXISTING WELLS. THE DATA IS COLLECTED FOUR TIMES A YEAR AS DIRECTED AND THE SAME IS BEING SENT REGULARLY TO MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE AND ITS REGIONAL OFFICE. * HUBANESWAR + CENTRAL / ROUND WATER BOARD AUTHORITY AND REGIONAL DIRECTOR + CENTRAL / ROUND WATER BOARD AUTHORITY.</p> <p>THE WATER QUALITY ANALYSIS REPORT FOR THE PERIOD OF 1 YEAR; EP 15 INDICATES NO ABNORMALITIES OR VIOLATIONS OF THE PRESCRIBED STANDARDS.</p> <p>THE / ROUND WATER LEVELS FOR THE PERIOD OF 1 YEAR; EP 15 ARE ATTACHED AS ANNEXURE.</p>

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XVIII.	THE PROJECT PROPONENT SHALL OBTAIN NECESSARY PRIOR PERMISSION OF THE COMPETENT AUTHORITIES FOR DRAUL OF REQUISITE QUANTITY OF SURFACE WATER IF ANY, REQUIRED FOR THE PROJECT.	APPROVAL EXISTS FOR EXTRACTION OF THE # CUSEC FOR ENVISAGED LEVEL OF PRODUCTION OF SURFACE WATER FROM 3 AND 4 IVER AND 2 HIKARIA 6 ALA. PRESENTLY THE AVERAGE CONSUMPTION IS WELL WITHIN THE PERMITTED QUANTITY. AN WATER HARVESTING REPORT OF * QANI 7 RES 5 INES IS UNDER SCRUTINY BY + / ? * * HUBANESWAR.
XIX.	THE SAFEGUARD MEASURES AS SUGGESTED BY THE) ENTRAL - ROUND < ATER (CARD VIDE LETTER 3 Q 4 f i 8 5 f i) - < ' / 8 + 7 / 4 f i f i f i DATED f f i f i 4 f i f i f i SHALL BE EFFECTIVELY IMPLEMENTED.	COPY OF THE SAID LETTER HAS BEEN REQUESTED FROM 5 O - 6 EW, ELH SO THAT THE CONTENTS OF THE ABOVE LETTER COULD BE KNOWN FOR COMPLIANCE IF ANY BY * 7 5 / < HE CONDITIONS STIPULATED IN ABOVE SAID ORDER WILL BE COMPLIED AS APPLICABLE TO * 7 5 /
XX.	THE PROJECT PROPONENT SHALL PRACTICE SUSTAINABLE RAIN WATER HARVESTING MEASURES ON LONG TERM BASIS AND WORK OUT DETAILED SCHEME RAIN WATER HARVESTING IN CONSULTATION WITH) ENTRAL - ROUND < ATER ' UTHORITY AND SUBMIT A COPY OF THE SAME TO THE 2 INISTRY OF + NVIRONMENT , CRESTS AND ITS 7 EGIONAL 4 FFCE, (HUBANESWAR.	< HE REPORT OF ^ < ECHNICAL . EASIBILITY ; TUDY ON : AN ? ATER O ARVESTING . 8 PREPARATION OF 5 ASTER 8 LAN FOR / ROUND ? ATER : EC HARGES_ PREPARED BY THE CONSULTANT IS BEING SUBMITTED TO + / ? * * HUBANESWAR FOR ENDORSEMENT AND APPROVAL OF THE SAME AFTER WHICH THE SUGGESTED LONG TERM MEASURES WILL BE IMPLEMENTED. 5 EAMWHILE * QANI 7 RE 5 INES HAS UNDERTAKEN FOLLOWING WATER HARVESTING MEASURES AS PER PREVAILING GUIDELINE OF + / ? * FOR RAIN WATER HARVESTING & 1 . CONSTRUCTIONS OF 5 ASONRY AND : ++ CHECK DAMS ACROSS SEASONAL AND PERENNIAL NALLAHS 1 . CONSTRUCTIONS OF LOOSE BOULDER CHECK DAMS " 4 * + , . ACROSS SEASONAL STREAMS fi GULLY PLUGS " 2 , . LIGGING OF STAGGERED TRENCHES OR + ONTOUR * UNDS/ 8 HOTOGRAPHS OF THE MEASURES UNDERTAKEN AT * 7 5 ARE ENCLOSED AS' NNEXURE' ; /// 1
XXI.	; EHUICULAR EMISSIONS SHOULD BE KEPT UNDER CONTROL AND REGULARLY MONITORED. 2 EASURES SHALL BE TAKEN FOR MAINTENANCE OF VEHICLES USED IN MINING OPERATIONS AND IN TRANSPORTATION OF 2 INERAL. 9 HE VEHICLES SHOULD BE COVERED WITH A TARPULIN AND SHALL NOT BE OVERLOADED.	8 PREVENTIVE 5 AINTENANCE OF 0 - 5 5 . LIGHT VEHICLES IS UNDERTAKEN REGULARLY TO KEEP THE VEHICULAR EMISSIONS UNDER CONTROL. 8 = + CERTIFICATION EXISTS FOR ALL MACHINERY DEPLOYED IN THE MINES. < RANSPORTATION OF 5 INERAL FROM O ILL < OP TO , ISPATCH POINT IS DONE BY COVERED CONVEYOR BELTS
XXII.	3 O (LASTING SHALL BE CARRIED OUT AFTER THE SUNSET. (LASTING OPERATION SHOULD BE CARRIED OUT ONLY DURING THE DAY TIME.) ONTROLLED (LASTING SHOULD BE PRACTICED. 9 HE MITIGATIVE MEASURES FOR CONTROL OF GROUND VIBRATIONS AND TO ARREST FLY ROCKS AND BOULDERS SHOULD BE IMPLEMENTED.	* LASTING IS CARRIED OUT ONCE IN A NOTIFIED FIXED INTERVAL " 4 f i 8 5 \ f i 8 f i 8 5 . OF DAY ONLY. < HE FOLLOWING MEASURES ARE BEING PRACTICED AT THE MINES TO MITIGATE BLASTING HAZARDS & 1 . + ONTROLLED BLASTING BY USE OF ; 5 ; EXPLOSIVES ALONG WITH ^ ; TAGGERED > _ DRILLING PATTERN IS IN PRACTICE/ 1 . * LASTING UNDER SUPERVISION OF QUALIFIED PERSONS/ 2 . = SE OF 6 7 6 - 4 f i , ELAY DETONATORS TO CONTROL

		<p>GROUND VIBRATION</p> <p>"Z) VOIDING OVERCHARGING OF THE BLAST HOLES ' PROPER STEMMING TO AVOID BLOWN OUT SHOTS</p> <p>"1 * LASTING ONLY FOR LOOSENING OF THE STRATA AND AVOID FLY ROCKS</p> <p>"4 5 AINTAINING SUITABLE SPACING AND BURDEN TO AVOID MISFIRES/ FLY ROCKS</p> <p>"# : ESTRUCTING NUMBER OF BLAST HOLES AT ANY POINT OF TIME TO CONTROL GROUND VIBRATIONS</p> <p>"\$) VOIDING BLASTING ON FOGGY DAYS' AFTERSUNSET AND AT TIMES OF HIGH WIND VELOCITY</p>
"XXIII	* RILLS SHALL EITHER BY OPERATED WITH DUST EXTRACTORS OR EQUIPPED WITH WATER INJECTION SYSTEM	<p>? ATER INJECTION AND , UST - XTRACTION SYSTEMS ARE PROVIDED AND OPERATIONAL IN Z DRILL MACHINES FOR SUPPRESSION OF : ; 85 /</p> <p><HE PHOTOGRAPH OF WET DRILLING PROCESS IS ATTACHED IN ' NNEXURE~/; 1</p>
"XXIV	2 INERAL HANDLING AREA SHALL BE PROVIDED WITH ADEQUATE NUMBER OF HIGH EFFICIENCY DUST EXTRACTION SYSTEM. 1 LOADING AND UNLOADING AREAS INCLUDING ALL THE TRANSFER POINT SHOULD ALSO HAVE EFFICIENT DUST CONTROL ARRANGEMENTS. 9 THESE SHOULD BE PROPERLY MAINTAINED AND OPERATED.	<p>5 INERAL HANDLING OPEN AREAS ARE PROVIDED WITH WATER SPRINKLING SYSTEM BY MOBILE WATER SPRINKLERS/ 5 INERAL HANDLING PLANT SUCH AS' SECONDARY CRUSHING PLANT OR PROCESSING PLANT " fifi <80 PLANT ' LOADING HAVE BEEN PROVIDED WITH THE FOLLOWING DUST CONTROL MEASURES</p> <ul style="list-style-type: none"> I/ , UST SUPPRESSION SYSTEM AT HOPPER IV , UST EXTRACTION SYSTEM 'BAG FILTER' AT SECONDARY CRUSHER II/ + OVERING OF CONVEYORS FROM O ILL TOP O OPPER TILL DISPATCH POINT IV , R/ FOG SYSTEM AT " fifi TPH PLANT V . IXXED WATER SPRINKLING SYSTEM COVERING A LENGTH OF " fifi M <p>: EGULAR MAINTENANCE IS UNDERTAKEN FOR SMOOTH OPERATION OF POLLUTION CONTROL MEASURES</p>
"XXV	8 SEWAGE TREATMENT PLANT SHOULD BE INSTALLED FOR THE COLONY. + 9.5 SHOULD ALSO BE PROVIDED FOR THE WORKSHOP AND WASTEWATER GENERATED DURING MINING OPERATION.	<p>. EASIBILITY STUDY REPORT TO ESTABLISH ; <8 AT * CLANI 7 RES 5 INES HAS BEEN SUBMITTED TO * 7.5 BY + IML, EPT" 11< 3 HARAGPUR * ASSED ON THE REPORT THE PROPOSAL FOR OUTSOURCING THE CONSTRUCTION OF ; <8 IS UNDER PREPARATION BY +- < 5 FIS;) 14~: ANCH/</p> <p>5 EANWHILE~ INDIVIDUAL SEPTIC TANKS FOLLOWED BY SOAKING PITS HAVE BEEN PROVIDED IN ALL QUARTERS AND OFFICE LOCATIONS</p> <p>Z NOS' OF - <8S "7 ILAND / REASE CATCH TRAPS HAVE BEEN PROVIDED AT MECHANICAL WORKSHOPS AND EQUIPMENT</p>

		WASHING JUNCTIONS TO COLLECT AND TREAT WORKSHOP EFFLUENT/
XXVI.	5 REPLACEMENT MEDICAL EXAMINATION AND PERIODICAL MEDICAL EXAMINATION OF THE WORKERS ENGAGED IN THE PROJECT SHALL BE CARRIED OUT AND RECORDS MAINTAINED, OR THE PURPOSE, SCHEDULE OF HEALTH EXAMINATION OF THE WORKERS SHOULD BE DRAWN AND FOLLOWED ACCORDINGLY) 11 NEWLY APPOINTED WORKERS UNDERGO A COMPREHENSIVE MEDICAL EXAMINATION "8 RE - EMPLOYMENT 5 MEDICAL - XAMINATION, AND SUBSEQUENTLY A 8 PERIODICAL 5 MEDICAL - XAMINATION "85 - , AT REGULAR INTERVALS/) 11 WORKERS UNDERGO A 85 - EVERY 1 YEARS HOWEVER WORKERS WHOSE AGE IS (21 YEARS THE 85 - IS DONE EVERY 2 YEARS/) 11 CONTRACTUAL WORKERS ALSO UNDERGO MEDICAL EXAMINATION < THE FINDINGS ARE MAINTAINED IN EACH WORKERS INDIVIDUAL MEDICAL RECORD/ VALID THROUGHOUT HIS DURATION OF SERVICE/ < THESE RECORDS ARE MANUALLY MAINTAINED AND COMPUTERIZED/) THREE TIER HEALTH MONITORING PROGRAM IS IN VOGUE AT * CLANI 5 INES/ < THE MINE'S HOSPITAL HAS AN 7 OCCUPATIONAL HEALTH 7 8/, / + ENTIRE WHICH IS RUN BY 7 OCCUPATIONAL HEALTH 8 PHYSICIAN/ < THE MINE'S HOSPITAL IS A " 11 BEDDED MULTI SPECIALTY HOSPITAL WITH FACILITIES TO HANDLE MAJOR AND MINOR SURGERIES AND CASUALTY DEPARTMENT/) 21 BEDDED 1+ = AND A BLOOD BANK ARE BEING ADDED/
XXVII.	5 PROMISION SHALL BE MADE FOR THE HOUSING OF CONSTRUCTION LABOUR WITHIN THE SITE WITH ALL NECESSARY INFRASTRUCTURE AND FACILITIES SUCH AS FUEL FOR COOKING, MOBILE TOILETS, MOBILE 895, SAFE DRINKING WATER, MEDICAL HEALTH CARE, OR CHE ETC 9 THE HOUSING MAY BE IN THE FORM OF TEMPORARY STRUCTURES TO BE REMOVED AFTER THE COMPLETION OF THE PROJECT	< THE LABOURERS ENGAGED IN THE CONSTRUCTION ACTIVITY RESIDE IN NEARBY VILLAGES/ 0 HOWEVER PROMISION HAS BEEN MADE AS AND WHEN NECESSARY FOR THE HOUSING OF CONSTRUCTION LABOUR ADJACENT TO THE CONSTRUCTION SITES IN NON FOREST LANDS IN THE FORM OF TEMPORARY STRUCTURES REMOVED AFTER THE COMPLETION OF THE PROJECT/ 1 INFRASTRUCTURAL FACILITIES AVAILABLE AT * CLANI SUCH AS SAFE DRINKING WATER MEDICAL HEALTH CARE ETC/ ARE ENJOYED BY THE WORKERS/
XXVIII. /	9 THE PROJECT PROPONENT SHALL TAKE ALL PRECAUTIONARY MEASURES DURING MINING OPERATION FOR CONSERVATION AND PROTECTION OF ENDANGERED FAUNA SUCH AS ELEPHANT, LEOPARD, SLOTH BEAR, WOLF, GAUR, PYTHON ETC 8 POTTED IN THE STUDY AREA AND CONTRIBUTE TOWARDS THE COST OF IMPLEMENTATION OF THE PLAN AND/ OR 7 REGIONAL < 11 LIFE 2 ANAGEMENT PLAN FOR CONSERVATION OF FLORA AND FAUNA SO PREPARED BY THE 8 STATE - GOVERNMENT/ 9 THE AMOUNT SO CONTRIBUTED SHALL BE INCLUDED IN THE PROJECT COST/ ' COPY OF ACTION PLAN	< THE FOLLOWING MEASURES ADOPTED FOR CONSERVATION OF . FLORA AND . FAUNA AT THE PROJECT SITE IS AS FOLLOWS & A/) ; THE ; PECIFIC ? 11 LIFE + CONSERVATION PLAN HAS BEEN PREPARED AS PER GUIDELINES OF + HIEF ? 11 LIFE ? ARDEN BY ENGAGING AN EXPERT AGENCY/ < THE PLAN HAS BEEN APPROVED BY THE ; STATE . GOVERNMENT AND ? 11 LIFE , DEPARTMENT VIDE ORDER NO 21 / 11 / 2014 ? 4 " + ; ; 81 21 " 11 11 11 , 7 1 21 / 11 11 11 WITH A TOTAL FINANCIAL IMPLICATION OF : 21 " # / 21 LAKHS TO * CLANI 7 RES 5 INES 5 FIS ;) 14 WHICH IS UNDER IMPLEMENTATION/
		B/ < THE NECESSARY FUNDS TOWARDS IMPLEMENTATION OF

	MAY BE SUBMITTED TO THE 2 INISTRY AND ITS REGIONAL OFFICE, (HUBANESWAR) WITHIN THREE MONTHS	REGIONAL? ILL LIFE MANAGEMENT PLAN? AN AMOUNT OF : \$1.17 LAKHS. IVE CORES SIXTY EIGHT LAKHS AND TWENTY TWO THOUSANDS THREE HUNDRED FIFTY ONLY, HAS BEEN DEPOSITED WITH +) 58) ON) fi+ 6011 \$! FOR : REGIONAL ? ILL LIFE MANAGEMENT FUND FOR ! fi ; Q MILES MINING LEASE 54. / Q 6 NECESSARY INFRASTRUCTURAL; UPPORIS ARE PROVIDED TO LOCAL FOREST DEPARMENTS AS AND WHEN REQUIRED FOR THE CAUSE OF ? ILL LIFE + ONSERVATION / 15 MINING 8IT HAS BEEN COVERED BY * ARBED WIRE FENCING TO PREVENT WILDLIFE FROM ENTERING THE MINING PREMISES/
XXIX.	THE CRITICAL PARAMETERS SUCH AS TSS 52 MICRON 11E1 52 ffi AND 34X IN THE AMBIENT AIR WITHIN THE IMPACT ZONE, PEAK PARTICLE VELOCITY AT 1 fifi M DISTANCE OR WITHIN THE NEAREST HABITATION, WHICHEVER IS CLOSER SHALL BE MONITORED PERIODICALLY. FURTHER, QUALITY OF DISCHARGED WATER SHALL ALSO BE MONITORED 9* 8, * 4, 5. AND TOTAL SUSPENDED SOLIDS 988" @ THE MONITORED DATA SHALL BE UPLOADED ON THE WEBSITE OF THE COMPANY AS WELL AS DISPLAYED ON A DISPLAY BOARD AT THE PROJECT SITE AT A SUITABLE LOCATION NEAR THE MAIN GATE OF THE) COMPANY IN PUBLIC DOMAIN. THE) ICULAR 3 Q O fifi fi / fi fifi ~ / 1 // 2 " DATED 1" fifi fifi \$ ISSUED BY 2 INISTRY OF + NMIONMENT AND , REST, WHICH IS AVAILABLE ON THE WEBSITE OF THE 2 INISTRY WWW.ENMFORNIO.IN SHALL ALSO BE REFERRED IN THIS REGARD FOR THE COMPLIANCE.	AMBIENT AIR QUALITY MONITORING IS BEING CARRIED OUT IN CORE BUFFER ZONE WITH THE ASSISTANCE OF 7; 8+* LABORATORY/ <HE REPORT IS BEING SUBMITTED TO THE 5 INISTRY/S: REGIONAL OFFICE AT * HUBANESWAR AND TO THE ; STATE POLLUTION + CONTROL * OARD fi + ENTIAL POLLUTION + CONTROL * OARD PERIODICALLY INFORM OF SIX MONTHLY REPORTS/ 5 MONITORING : EPORTS ARE ENCLOSED AS ' NNEXURE ~// <HERE IS NO DISCHARGE FROM 5INES IN THIS LEASE/ OOWEVER THE ANALYSIS REPORT OF <, ; ~, 7 ~ 80 AND <OTAL; USPENDED; OLIDS OF 11 LOCATIONS INCLUSIVE OF THE TAILING POND SEEPAGE IN THE ADJOINING LEASE IS REGULARY SUBMITTED IN THE COMPLIANCE REPORTS/ <HE MONITORING DATA ARE UPLOADED IN THE WEBSITE OF THE COMPANY ALONG WITH THE SIX MONTHLY COMPLIANCE REPORTS AND ALSO DISPLAYED NEAR MAIN GATE IN PUBLIC DOMAIN EASILY ACCESSIBLE/
XXX.	FINAL MINE CLOSURE PLAN ALONG WITH DETAILS OF) ORPUS, UND SHOULD (E SUBMITTED TO THE 2 INISTRY OF + NMIONMENT , REST 2 YEARS IN ADVANCE OF FINAL MINE CLOSURE FOR APPROVAL	FINAL 5INE +LOSURE PLAN ALONG WITH DETAILS OF + ORPUS FUND WILL BE SUBMITTED TO THE 5 INISTRY 1 YEARS IN ADVANCE OF FINAL MINE CLOSURE FOR APPROVAL/ OOWEVER THE 8ROGRESSIVE 5INE +LOSURE 8LAN 85 + 8, IS APPROVED BY 1* 5 VIDE THEIR LETTER NO/ 5; 5 fi. 5 fi # 7: 1 fi* O = fi fi fi \$ 1 % fi fi \$", 7 fi / fi \$ fi \$ /
XXXI.	30 CHANGE IN MINING TECHNOLOGY AND SCOPE OF WORKING SHOULD BE MADE WITHOUT PRIOR APPROVAL OF THE 2 INISTRY OF	<HERE HAS BEEN NO CHANGE IN MINING METHOD AND SCOPE OF WORKING AS PER THE ELABORATIONS IN THE APPROVED 5 MINING ; CHEME fi MINING PLAN 5 MINING WILL

	+ NVRONMENT , ORESTS AND 3 O CHANGE IN THE CALENDAR PLAN INCLUDING EXCAVATION, QUANTUM OF MINERAL IRON ORE AND WASTE SHOULD BE MADE	BE DONE AS PER THE APPROVED MINING PLAN. PRIOR APPROVAL WILL BE SOUGHT FROM MINISTRY OF + NVRONMENT, ORESTS AND) LIMATE) HANGE TO ALTER ANY MINERAL EXCAVATION PROCESS
'XXXIV,	' T LEAST FOUR AMBIENT AIR QUALITY MONITORING STATIONS SHOULD BE ESTABLISHED IN THE CORE ZONE AS WELL AS IN THE BUFFER ZONE FOR 7852 °5ARTICULATE MATTER WITH SIZE LESS THAN 10 MICRON (PM10) AND 34 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	. OUR NOS OF) MBIENT) IR QUALITY MONITORING LOCATIONS HAVE BEEN FIXED IN CORE ZONE AND BUFFER ZONE IN CONSULTATION WITH ; STATE POLLUTION + CONTROL BOARD WHERE ; 85 "85 tfl" 85 tfl, INCLUDING OTHER PARAMETERS ARE MONITORED WITH THE ASSISTANCE OF 7 ; 8+ * APPROVED LABORATORY. THE) IR MONITORING REPORTS ARE ENCLOSED IN ' ANNEXURE / "1
'XXXIII,	/NDUSTRIAL WASTE WATER "WORKSHOP AND WASTE WATER FROM MINE" SHOULD BE PROPERLY COLLECTED, TREATED SO AS TO CONFORM TO THE STANDARDS PRESCRIBED UNDER- 87 ŽŁŁ ° + " DATED 15TH 2 AY, 1986 AND 1ST * DECEMBER, 1986 OR AS AMENDED FROM TIME TO TIME. OIL AND GREASE TRAP SHOULD BE INSTALLED BEFORE DISCHARGE OF WORKSHOP EFFLUENTS	✓ - EFFLUENT GENERATED FROM THE BENEFICIATION PLANT IS TREATED IN THICKENERS FOLLOWED BY CLEARING PONDS. THE CLEAR WATER TO THE TUNE OF "1" IS BEING RECYCLED AND THE UNDERFLOW FROM THICKENER IS DISCHARGED INTO CLEARING, AMV ✓ Ž NOS OF 7 OIL AND / REASE CATCH TRAPS HAVE BEEN PROVIDED AT MECHANICAL WORKSHOPS AND EQUIPMENT WASHING JUNCTIONS TO COLLECT AND TREAT WORKSHOP EFFLUENT THE QUALITY OF TAILING POND SEEPAGE WATER AND WORKSHOP EFFLUENT AFTER TREATMENT IS GIVEN IN THE ' ANNEXURE] / ("1
'XXXIV,	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	A)) DEQUATE AMOUNT OF , DUST MASKS ARE PROVIDED TO ALL WORKING PERSONNEL IN THE MINES. THE , UGITIVE , DUST EMISSION IS WITHIN NORMS SUGGESTED IN 6)) 95 ; AND DUE CARE IS BEING TAKEN TO FURTHER REDUCE THE : ; 85 LEVELS AND PROVIDE A DUST FREE ENVIRONMENT FOR THE WORKING PERSONNEL B) "IN-HOUSE TRAINING PROGRAMS" INCLUDING : REFRESHERS, TRAINING ; SAFETY) AWARENESS, TRAINING 5 OCK , RILL, TRAINING ETC ARE HELD AT 5 INES. OCCASIONAL TRAINING + ENTIRE "5 > + , ON REGULAR BASIS TO AUGMENT THE AWARENESS OF SAFETY AND COMMUNICATE LATEST TECHNOLOGICAL DEVELOPMENTS IN MINING AND OTHER ALLIED SECTORS AMONG THE WORKING PERSONNEL C) * CLANI 7 RES 5 INES HAS ALSO IMPLEMENTED

Sl. No.	Condition	Compliance Status
XXXV.	4 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>- ENVIRONMENTAL MANAGEMENT SYSTEM is in place as per 17 CFR 17.101 STANDARD QUALITY MANAGEMENT SYSTEM is in place as per 17 CFR 17.101 STANDARD AND 7 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM AS PER 17 CFR 17.101 CERTIFIED BY *; 1/</p> <p>* CLINICAL RESOURCES IS CERTIFIED UNDER THE STATE OF THE ART 17 CFR 17.101 FOR ESTABLISHING FLAWLESS 7 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM/ 7 OCCUPATIONAL HEALTH SURVEY IS CARRIED OUT REGULARLY TO ASSESS THE EXISTING CONDITION AND TO CHECK THE EFFECTIVENESS OF THE MANAGEMENT MEASURES AND TO OBSERVE ANY CONTRACTIONS DUE TO EXPOSURE TO DUST AND TAKE CORRECTIVE MEASURES/ <THE FINDINGS ARE MAINTAINED IN THE WORKER'S MEDICAL RECORD MAINTAINED THROUGHOUT THE DURATION OF HIS SERVICE/ MEDICAL TESTS ARE CARRIED OUT AT THE * CLINICAL HOSPITAL/) THREE TIER HEALTH MONITORING PROGRAM IS IN VOGUE AT * CLINICAL RESOURCES/ IN CASE OF A PERSON WHO IS FOUND TO BE SUFFERING FROM SOME WORK RELATED DISORDER HE IS TREATED ACCORDINGLY AT THE MINE'S HOSPITAL OR REFERRED TO ;) 14]S HOSPITAL AT : BURKELA OR TO SPECIALIZED HOSPITALS ELSEWHERE AS PER THE REQUIREMENT/ IF DEEMED NECESSARY THE WORKER IS REASSIGNED ELSEWHERE IN THE MINE EITHER TEMPORARILY OR PERMANENTLY/ <THE COURSE OF ACTION TAKEN IS DULY RECORDED IN THE WORKER'S MEDICAL FILE/</p>
XXXVI.	' SEPARATE ENVIRONMENTAL MANAGEMENT CELL WITH SUITABLE QUALIFIED PERSONNEL SHOULD BE SET UP UNDER THE CONTROL OF A SENIOR +XECUTIVE, WHO WILL REPORT DIRECTLY TO THE . HEAD OF THE 4 RGANIZATION/	<p>) ENVIRONMENTAL MANAGEMENT CELL is established as a separate section under the MINES DEPARTMENT UNDER DIRECT CONTROL OF , Y/ / GENERAL MANAGER MINES/ <THE DETAILS OF CONSTITUTION IS AS FOLLOWS &</p> <p>1/) ASSISTANT/ GENERAL MANAGER MINES DEPARTMENT</p> <p>2/) ASSISTANT MANAGER MINES DEPARTMENT</p> <p>3/) SUPERVISOR MINES DEPARTMENT</p> <p>) ASSISTANT/ GENERAL MANAGER MINES DEPARTMENT COORDINATES THE DAY TO DAY ACTIVITIES PERTAINING TO COMMUNICATIONS RELATED TO STATUTORY CLEARANCES AND COMPLIANCES OF - ENVIRONMENTAL MANAGEMENT DEPARTMENT : ENVIRONMENTAL ISSUES AND REPORTS TO THE , Y/ / GENERAL MANAGER MINES DEPARTMENT AND MINES MANAGER WHO BEING STATUTORY HEAD REGULARLY REVIEWS THE COMPLIANCES OF VARIOUS REGULATIONS PERTAINING TO - ENVIRONMENTAL MATTERS OF MINES AND REPORTS TO CHIEF OF MINES DEPARTMENT</p> <p>) ASSISTANT MANAGER MINES DEPARTMENT IS POSTED IN THE - 5 + WHO EXPEDITES INITIATION OF PROPOSALS AS PER</p>

	<p>- ENVIRONMENTAL MANAGEMENT PLAN AND COORDINATES FIELD IMPLEMENTATION OF THE JOBS) 5 INING . CREMAN</p> <p>- ENVIRONMENTAL OFFICE, ASSISTS HIM IN THE DAY TO DAY ACTIVITIES/ 6 NECESSARY MEASURES ARE ALSO BEING TAKEN UP FOR CAPACITY BUILDING OF THE - ENVIRONMENTAL MANAGEMENT + ELL BY APPOINTMENT OF REQUIRED QUALIFIED PERSONNEL AS PLANNED IN - 5 8</p> <p>. FURTHER AN - ENVIRONMENTAL MANAGEMENT SYSTEM - 5; HAS BEEN IMPLEMENTED AT * CLANI 7 RE 5 INES WHICH HAS BEEN CERTIFIED AS PER 1; 7 12 FILE & FILE ; STANDARD < HE - 5; OF * 7 5 COVERS 5 INING ACTIVITIES 5 MAINTENANCE ACTIVITIES 5 INTERNAL * MAINTENANCE AND ALL OTHER ALLIED ACTIVITIES) S PER THE - 5; ~ A SENIOR EXECUTIVE OF THE ORGANIZATION IN THE LEVEL OF , / 5 15 ECH, 1 FIC + 5 + + * ; ; FUNCTIONS AS 5 MANAGEMENT REPRESENTATIVE AND IS RESPONSIBLE FOR STRICT IMPLEMENTATION</p>
XXXVII	<p>THE FUNDS EARMARKED FOR ENVIRONMENTAL PROTECTION MEASURES SHOULD BE KEPT IN SEPARATE ACCOUNT AND SHOULD NOT BE DIVERTED FOR OTHER PURPOSES = EARMARKED EXPENDITURE SHOULD BE REPORTED TO THE 2 MINISTRY AND ITS REGIONAL OFFICE LOCATED AT (HUBANESWAR</p>
XXXVII	<p>THE PROJECT PROPONENT SHALL SUBMIT SIX MONTHLY REPORT ON THE STATUS OF THE COMPLIANCE OF THE STIPULATED ENVIRONMENTAL CLEARANCE CONDITIONS INCLUDING RESULTS OF MONITORED DATA "BOTH IN HARD COPIES AS WELL AS BY E-MAIL" TO THE 2 MINISTRY OF ENVIRONMENTAL AND FORESTS, ITS REGIONAL OFFICE (HUBANESWAR, THE RESPECTIVE REGIONAL OFFICE OF) CENTRAL POLLUTION CONTROL (BOARD AND STATE POLLUTION) CONTROL (BOARD) THE PROPONENT SHALL UPLOAD THE STATUS OF COMPLIANCE OF THE ENVIRONMENTAL CLEARANCE CONDITIONS, INCLUDING RESULTS OF MONITORED DATA ON THEIR WEBSITE AND SHALL UPDATE THE SAME PERIODICALLY / T</p>

Sl. No.	Condition	Compliance Status
	SHALL SIMULTANEOUSLY BE SENT TO THE REGIONAL OFFICE OF THE MINISTRY OF + ENVIRONMENT AND , FOREST (HUBANESWAR, THE RESPECTIVE REGIONAL OFFICE OF) CENTRAL POLLUTION) CONTROL (CARD AND THE STATE POLLUTION) CONTROL (CARD	
XXXIX.	1. COPY OF CLEARANCE LETTER SHALL BE SENT BY THE PROPONENT TO CONCERNED PANCHAYAT, PRADESH SANSad/ 2 MUNICIPAL) CORPORATION, PRADESH LOCAL (BODY AND THE LOCAL 3 - 4. IF ANY, FROM WHOM SUGGESTION/ REPRESENTATION HAS BEEN RECEIVED WHILE PROCESSING THE PROPOSAL. THE CLEARANCE LETTER SHALL ALSO BE PUT ON THE WEBSITE OF THE) COMPANY BY THE PROPONENT. THE STATE POLLUTION) CONTROL (CARD SHOULD DISPLAY A COPY OF THE CLEARANCE LETTER AT THE REGIONAL OFFICE, * DISTRICT /INDUSTRY) ENTER AND) COLLECTOR'S OFFICE/ PRADESH SANSad'S OFFICE FOR 7 DAYS	+ COPIES OF CLEARANCE LETTER WERE DISTRIBUTED AMONGST LOCAL BODIES FROM WHOM VALUABLE SUGGESTIONS/ REPRESENTATION/ FEEDBACK HAS BEEN RECEIVED WHILE PROCESSING THE PROPOSAL
XL.	THE PROJECT AUTHORITIES SHOULD ADVERTISE AT LEAST IN TWO LOCAL NEWSPAPERS OF THE * DISTRICT OR STATE IN WHICH THE PROJECT IS LOCATED AND WIDELY CIRCULATED, ONE OF WHICH SHALL BE IN THE VERNACULAR LANGUAGE OF THE LOCALITY CONCERNED, WITHIN " DAYS OF THE ISSUE OF THE CLEARANCE LETTER INFORMING THAT THE PROJECT HAS BEEN ACCORDED ENVIRONMENTAL CLEARANCE AND A COPY OF THE CLEARANCE LETTER IS AVAILABLE WITH THE STATE POLLUTION) CONTROL (CARDS AND ALSO AT WEB SITE OF THE MINISTRY OF + ENVIRONMENT AND , FORESTS AT HTTP:// ENVFORNIG.IN AND A COPY OF THE SAME SHOULD BE FORWARDED TO THE REGIONAL OFFICE OF THE MINISTRY LOCATED (HUBANESWAR	<p>1) ADVERTISEMENTS REGARDING GRANT OF ENVIRONMENTAL CLEARANCE WAS PUBLISHED IN PRADESH DAILY ;) 5 *),) ~ * HUBANESWAR ; AMBALPUR - DISTRICT ON DATE 1/11/11 AND * BUSINESS; STANDARD ON DATE 1/11/11 /</p> <p>2) COPY OF THE SAME HAS BEEN DEPOSITED WITH THE AUTHORITIES AT : REGIONAL OFFICE OF THE S.O. ~ * HUBANESWAR</p>
#	THE MINISTRY OR ANY OTHER COMPETENT AUTHORITY MAY ALTER / MODIFY THE ABOVE CONDITIONS OR STIPULATE ANY FURTHER CONDITION IN THE INTEREST OF ENVIRONMENT PROTECTION	1) AGREED TO & THE CONDITIONS WILL BE COMPLIED AS AND WHEN STIPULATED

813 Q

) ONDITION

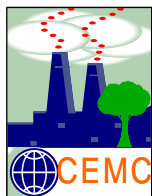
) OMPLIANCE STATUS

\$, FAILURE TO COMPLY WITH ANY OF THE CONDITION MENTIONED ABOVE MAY RESULT IN WITHDRAWAL OF THIS CLEARANCE AND ATTRACT ACTION UNDER THE PROMSIONS OF + NMIRONMENT °5ROTECTION" ' CT. f\$#/ /	, ULY 6 OTEDY
%	9HE ABOVE CONDITION WILL BE ENFORCED INTERALLA, UNDER THE PROMSIONS OF THE < ATER °PREVENTION ') ONTROL OF 5OLLUTION" ' CT. f\$" Ž. THE ' IR °PREVENTION AND CONTROL OF POLLUTION" ' CT. f\$#f, THE + NMIRONMENT °PROTECTION" ' CT. f\$# / AND PUBLIC LIABILITY /NSURANCE ' CT. f\$ \$f ALONG WITH THEIR AMENDMENTS AND RULES MADE THEREUNDER	6 OTEDY
£fi	' NY APPEAL AGAINST THIS ENMIRONMENTAL CLEARANCE SHALL IIE WITH THE 3 ATIONAL - REEN 9RBUNAL, IF PREFERRED, WITHIN A PERIOD OF 1fi DAYS , AS PRESCRIBED UNDERSECTION~fi OF THE 3 ATIONAL - REEN 9RBUNAL' CT£fiffi	, ULY 6 OTEDY

ANNEXURE - I(A)
AMBIENT AIR QUALITY MONITORING DATA
Apr'18 to Sep'18

Zone	Location	Month-Year	PM10	PM2.5
BUFFER ZONE	Campus Store	Apr-2018	57.855	26.872
		May-2018	60.935	22.719
		Jun-2018	39.32	20.531
		Jul-2018	15.997	12.805
		Aug-2018	23.785	15.969
		Sep-2018	18.225	15.656
	JNRC	Apr-2018	76.457	41.511
		May-2018	70.03	44.342
		Jun-2018	48.354	53.738
		Jul-2018	28.527	14.24
		Aug-2018	30.459	15.94
		Sep-2018	58.642	21.082
CORE ZONE	CISF Township	Aug-2018	0.788**	15.929
		Sep-2018	0.0**	10.815
		Apr-2018	92.673	17.545
		May-2018	109.093	49.481
		Jun-2018	103.593	33.362
		Jul-2018	999.0**	28.129
	Near Karo Bridge	Jun-2018	1.0**	1.0**
		Jul-2018	1.0**	1.0**
		Aug-2018	605.691	151.429
		Sep-2018	144.16	70.88

** Data anomaly



CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

ANNEXURE - I(B)

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Report no. - CEMC/BOM/140918/W1

Issued Date-14.09.2018

WATER QUALITY TEST REPORT

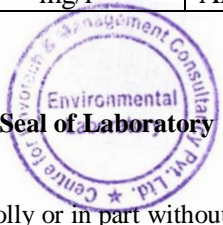
Name & Address of the Client : M/s. SAIL-RMD, Bolani Ores Mines, Barbil
Date of Sampling : 06.09.2018
Sampling by : Sontosh Kumar Mohanty
Date of Sample Received : 07.09.2018
Sample Description : Surface Water
Sample Location : Karoriver before entering 6.90 ML Lease
Date of Analysis : 07.09.2018 to 12.09.2018
Reference No. : CEMC-14092018W1

ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Method of Testing	Result
1	pH Value @ 25°C	--	APHA 4500H ⁺ B	7.46
2	Total Suspended Solids	mg/l	APHA 2540 D	17.2
3	Oil & Grease	mg/l	APHA 5520 B	ND
4	Total Residual Chlorine	mg/l	APHA 4500Cl ₂ B	ND
5	BOD for 5 days @ 20°C	mg/l	APHA 5210 B	4.2
6	Chemical Oxygen Demand	mg/l	APHA 5220 C	12
7	Arsenic as As	mg/l	APHA 3114 B	<0.001
8	Mercury as Hg	mg/l	APHA 3500 Hg	<0.001
9	Lead as Pb	mg/l	APHA 3111 B,C	<0.01
10	Cadmium as Cd	mg/l	APHA 3111 B,C	<0.003
11	Hexavalent Chromium as Cr ⁺⁶ , Max.	mg/l	APHA 3500Cr B	<0.05
12	Copper as Cu	mg/l	APHA 3111 B,C	<0.03
13	Zinc as Zn	mg/l	APHA 3111 B,C	<0.05
14	Nickel as Ni	mg/l	APHA 3111 B,C	<0.01
15	Cyanide as CN	mg/l	APHA 4500CN ⁻ C,D	ND
16	Fluoride as F	mg/l	APHA 4500F ⁻ C	0.09
17	Sulphide as S	mg/l	APHA 4500 S ²⁻ D	<0.01
18	Phenolic compound as C ₆ H ₅ OH, Max.	mg/l	APHA 5530 B,D	ND
19	Manganese as Mn	mg/l	APHA 3500Mn B	0.08
20	Total Iron as Fe	mg/l	APHA 3500Fe, B	0.18
21	Nitrate Nitrogen as N	mg/l	APHA 4500NO ₃ ⁻ E	2.4

NB: ND- Not Detectable


Authorized Signatory


Seal of Laboratory

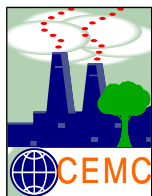
Notes:

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Report no. - CEMC/BOM/140918/W2

Issued Date-14.09.2018

WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. SAIL-RMD, Bolani Ores Mines, Barbil
Date of Sampling : 06.09.2018
Sampling by : Sontosh Kumar Mohanty
Date of Sample Received : 07.09.2018
Sample Description : Surface Water
Sample Location : Jhikaria Nallah Existing 6.90 ML and before joining Karo
Date of Analysis : 07.09.2018 to 12.09.2018
Reference No. : CEMC-14092018W2

ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Method of Testing	Result
1	pH Value @ 25°C	--	APHA 4500H ⁺ B	7.23
2	Total Suspended Solids	mg/l	APHA 2540 D	33.4
3	Oil & Grease	mg/l	APHA 5520 B	ND
4	Total Residual Chlorine	mg/l	APHA 4500Cl ₂ B	ND
5	BOD for 5 days @ 20°C	mg/l	APHA 5210 B	4.8
6	Chemical Oxygen Demand	mg/l	APHA 5220 C	16
7	Arsenic as As	mg/l	APHA 3114 B	<0.001
8	Mercury as Hg	mg/l	APHA 3500 Hg	<0.001
9	Lead as Pb	mg/l	APHA 3111 B,C	<0.01
10	Cadmium as Cd	mg/l	APHA 3111 B,C	<0.003
11	Hexavalent Chromium as Cr ⁺⁶ , Max.	mg/l	APHA 3500Cr B	<0.05
12	Copper as Cu	mg/l	APHA 3111 B,C	<0.03
13	Zinc as Zn	mg/l	APHA 3111 B,C	<0.05
14	Nickel as Ni	mg/l	APHA 3111 B,C	<0.01
15	Cyanide as CN	mg/l	APHA 4500CN ⁻ C,D	ND
16	Fluoride as F	mg/l	APHA 4500F ⁻ C	0.12
17	Sulphide as S	mg/l	APHA 4500 S ²⁻ D	<0.01
18	Phenolic compound as C ₆ H ₅ OH, Max.	mg/l	APHA 5530 B,D	ND
19	Manganese as Mn	mg/l	APHA 3500Mn B	0.6
20	Total Iron as Fe	mg/l	APHA 3500Fe, B	0.78
21	Nitrate Nitrogen as N	mg/l	APHA 4500NO ₃ ⁻ E	3.2

NB: ND- Not Detectable

Authorized Signatory

Seal of Laboratory

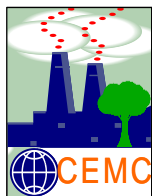
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Report no. - CEMC/BOM/140918/W3

Issued Date-14.09.2018

WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. SAIL-RMD, Bolani Ores Mines, Barbil
Date of Sampling : 06.09.2018
Sampling by : Sontosh Kumar Mohanty
Date of Sample Received : 07.09.2018
Sample Description : Surface Water
Sample Location : Jhikaria Nallah at School Pond existing 5.1 ML
Date of Analysis : 07.09.2018 to 12.09.2018
Reference No. : CEMC-14092018W3

ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Method of Testing	Result
1	pH Value @ 25°C	--	APHA 4500H ⁺ B	7.34
2	Total Suspended Solids	mg/l	APHA 2540 D	9.6
3	Oil & Grease	mg/l	APHA 5520 B	ND
4	Total Residual Chlorine	mg/l	APHA 4500Cl ₂ B	ND
5	BOD for 5 days @ 20°C	mg/l	APHA 5210 B	2.4
6	Chemical Oxygen Demand	mg/l	APHA 5220 C	10
7	Arsenic as As	mg/l	APHA 3114 B	<0.001
8	Mercury as Hg	mg/l	APHA 3500 Hg	<0.001
9	Lead as Pb	mg/l	APHA 3111 B,C	<0.01
10	Cadmium as Cd	mg/l	APHA 3111 B,C	<0.003
11	Hexavalent Chromium as Cr ⁺⁶ , Max.	mg/l	APHA 3500Cr B	<0.05
12	Copper as Cu	mg/l	APHA 3111 B,C	<0.03
13	Zinc as Zn	mg/l	APHA 3111 B,C	<0.05
14	Nickel as Ni	mg/l	APHA 3111 B,C	<0.01
15	Cyanide as CN	mg/l	APHA 4500CN ⁻ C,D	ND
16	Fluoride as F	mg/l	APHA 4500F ⁻ C	0.08
17	Sulphide as S	mg/l	APHA 4500 S ²⁻ D	<0.01
18	Phenolic compound as C ₆ H ₅ OH, Max.	mg/l	APHA 5530 B,D	ND
19	Manganese as Mn	mg/l	APHA 3500Mn B	0.09
20	Total Iron as Fe	mg/l	APHA 3500Fe, B	0.27
21	Nitrate Nitrogen as N	mg/l	APHA 4500NO ₃ ⁻ E	1.8

NB: ND- Not Detectable

Authorized Signatory

Seal of Laboratory

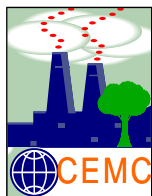
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Report no. - CEMC/BOM/140918/W4

Issued Date-14.09.2018

WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. SAIL-RMD, Bolani Ores Mines, Barbil
Date of Sampling : 06.09.2018
Sampling by : Sontosh Kumar Mohanty
Date of Sample Received : 07.09.2018
Sample Description : Surface Water
Sample Location : Karoriver Near Kalimandir
Date of Analysis : 07.09.2018 to 12.09.2018
Reference No. : CEMC-14092018W4

ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Method of Testing	Result
1	pH Value @ 25°C	--	APHA 4500H ⁺ B	7.29
2	Total Suspended Solids	mg/l	APHA 2540 D	87.8
3	Oil & Grease	mg/l	APHA 5520 B	ND
4	Total Residual Chlorine	mg/l	APHA 4500Cl ₂ B	ND
5	BOD for 5 days @ 20°C	mg/l	APHA 5210 B	5.2
6	Chemical Oxygen Demand	mg/l	APHA 5220 C	20
7	Arsenic as As	mg/l	APHA 3114 B	<0.001
8	Mercury as Hg	mg/l	APHA 3500 Hg	<0.001
9	Lead as Pb	mg/l	APHA 3111 B,C	<0.01
10	Cadmium as Cd	mg/l	APHA 3111 B,C	<0.003
11	Hexavalent Chromium as Cr ⁺⁶ , Max.	mg/l	APHA 3500Cr B	<0.05
12	Copper as Cu	mg/l	APHA 3111 B,C	<0.03
13	Zinc as Zn	mg/l	APHA 3111 B,C	<0.05
14	Nickel as Ni	mg/l	APHA 3111 B,C	<0.01
15	Cyanide as CN	mg/l	APHA 4500CN ⁻ C,D	ND
16	Fluoride as F	mg/l	APHA 4500F ⁻ C	0.14
17	Sulphide as S	mg/l	APHA 4500 S ²⁻ D	<0.01
18	Phenolic compound as C ₆ H ₅ OH, Max.	mg/l	APHA 5530 B,D	ND
19	Manganese as Mn	mg/l	APHA 3500Mn B	0.8
20	Total Iron as Fe	mg/l	APHA 3500Fe, B	1.03
21	Nitrate Nitrogen as N	mg/l	APHA 4500NO ₃ ⁻ E	4.3

NB: ND- Not Detectable

Authorized Signatory

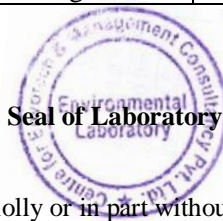
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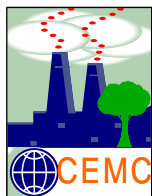
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Report no. - CEMC/BOM/140918/W5

Issued Date-14.09.2018

WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. SAIL-RMD, Bolani Ores Mines, Barbil
Date of Sampling : 06.09.2018
Sampling by : Santhosh Kumar Mohanty
Date of Sample Received : 07.09.2018
Sample Location : Talling Pond Seepage Water
Date of Analysis : 07.09.2018 to 12.09.2018
Reference No. : CEMC-14092018W5

ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Method of Testing	Result
1	pH Value @ 25°C	--	APHA 4500H ⁺ B	7.36
2	Total Suspended Solids	mg/l	APHA 2540 D	6.2
3	Oil & Grease	mg/l	APHA 5520 B	ND
4	Total Residual Chlorine	mg/l	APHA 4500Cl ₂ B	ND
5	BOD for 5 days @ 20°C	mg/l	APHA 5210 B	2.2
6	Chemical Oxygen Demand	mg/l	APHA 5220 C	12
7	Arsenic as as	mg/l	APHA 3114 B	<0.001
8	Mercury as Hg	mg/l	APHA 3500 Hg	<0.001
9	Lead as Pb	mg/l	APHA 3111 B,C	<0.01
10	Cadmium as Cd	mg/l	APHA 3111 B,C	<0.003
11	Hexavalent Chromium as Cr ⁺⁶ , Max.	mg/l	APHA 3500Cr B	<0.05
12	Copper as Cu	mg/l	APHA 3111 B,C	<0.03
13	Zinc as Zn	mg/l	APHA 3111 B,C	<0.05
14	Nickel as Ni	mg/l	APHA 3111 B,C	<0.01
15	Cyanide as CN	mg/l	APHA 4500CN ⁻ C,D	ND
16	Fluoride as F	mg/l	APHA 4500F ⁻ C	0.07
17	Sulphide as S	mg/l	APHA 4500 S ²⁻ D	<0.01
18	Phenolic compound as C ₆ H ₅ OH, Max.	mg/l	APHA 5530 B,D	ND
19	Manganese as Mn	mg/l	APHA 3500Mn B	0.16
20	Total Iron as Fe	mg/l	APHA 3500Fe, B	<0.05
21	Nitrate Nitrogen as N	mg/l	APHA 4500NO ₃ ⁻ E	0.83

NB: ND- Not Detectable

Authorized Signatory

Notes:

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Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101,

E-mail: cemclab@yahoo.in, Mobile: 9937631956, 8895177314

ANNEXURE - I(C)

fiž Ž # † † % ~ " /ž † /\$ / †

\$*+&)(† & (%&Q / † (2(+ ~ fl - 3 " ' ')+)	%&Q / † (2(+ ~ ! (. 3 " ' ')+)
ž , *\$+) #) *\$' & ž \$. /)	„ ~	„ †
ž \$ \$' , %\$ #) *\$' &	/ /	/ †
ž , *\$+) " , 1 +. ()-	fl ~	fl †
! (\$ /\$) (O /)+ ')	Ž †	„ ~

· ŽŽ/ &\$! / °°~ ~ ! #1 \$! ~ ! "ž fV &L' #Ž fl , / # ŁŁŁ fl % ~ H"

2A - D	+D9717DC	/ 7G79JA7GHD< 9DCHG97DC	& 7B ; CH7DC ~ + 6 \$ 6 * ~ B
I	3D, K 7A 7GJC: . A . \$: JBE D< ("7G 7~&I	& GMBDJA ; GID; K 7A	+ " / ~ B ° * " i Ł B ° 3DE K? I>" i / EB ° \$DIIDB K? I>" i Ł B
/	3D, K 7A 7GJC: / 7CEDH FJ 7GMC; 7G , 7=7NC; 7G 7 ~&fl	, 7HDCGM ; 177C= K 7A	+ " i Ž ~ B ° * " i Ł B ° 3DE K? I>" ~ Ž B ° \$DIIDB K? I>" i Ł B
fi	3D, K 7A 7GJC: . \$: JBE D< & "7G 7~&ž	% B ; CI ;: 1 ; 177C= K 7A <DADK ;: 8M) 7GVC: : G7C	+ " Ž ~ B ° * " i Ł B 3DE K? I>" i ~ B \$DIIDB K? I>" i Ł B
fl	3D, K 7A 7GJC: . \$: JBE D<) "7G 7~&Ł	& GM 8DJA ; G ID; K 7A <DADK ;: 8M) 7GVC: : G7C	+ " fl ~ B ° * " i Ł B 3DE K? I>" i ~ B \$DIIDB K? I>" i Ł B
Ł	3D, K 7A 7GJC: (7C H: JBE 7 & * Ł 4 7A M&/	, 7HDCGM 1 ; 177C= K 7A <DADK ;: 8M) 7GVC: : G7C	+ " / Ł ~ B ° * " i Ł B 3DE K? I>" i ~ B \$DIIDB K? I>" i Ł B
†	3D, K 7A 7GJC: . A (7C H : JBE C; 7G † ~ ~ 3 / * / A CI ~&fi	& GM \$DJA ; G 1 ; 177C= K 7A <DADK ;: 8M) 7GVC: : G7C	+ " / ~ B ° * " i Ł B 3DE K? I>" i ~ B \$DIIDB K? I>" i Ł B
Ž	1 ; 177C= 3D, K 7A / 7CEDH . \$ & JBE H	1 % % G 177C= K 7A	+ " fl ~ B ° * " / ~ B 3DE K? I>" i Ł B \$DIIDB K? I>" / ~ B
ž	1 ; 177C= 3D, K 7A / 7CEDH OJ 7GMC9A: 7C = & JBE H	& GM \$DJA ; G 1 ; 177C= K 7A <DADK ;: 8M = 7GVC: : G7C	+ " Ž Ł ~ B ° * " i Ł B 3DE K? I>" i fi B \$DIIDB K? I>" i Ž B
!	1 ; 177C= 3D, K 7A 7GJC: (7C H & JBE H	, 7HDCGM ; 177C= K 7A	+ " fl ~ B ° * " i Ł B 3DE K? I>" i fi B \$DIIDB K? I>" i Ž B
i ~	1 ; 177C= 5 7A 8 ; > 7C & * Ł 7C . A < 7C H : JBE C; 7G † ~ ~ 3 / *	11 , G 177C= K 7A	+ " fl ~ B ° * " i Ł B 3DE K? I>" i ~ B \$DIIDB K? I>" i Ł B
ii	1 ; 177C= \$DJC: 7GMK 7A	% B ; CI ;: K 7A	+ " / Ł ~ B ° * " / ~ B K? I>" i ~ 7C
i /	1 ; 177C= 5 7A 7DC = I>; 8G @ C 7G 7 7C: K 7H ; : JBE 7) " # G 7	& GM \$DJA ; G 1 ; 177C= 5 7A	+ " ž i Ł B ° * " i Ł B 3DE K? I>" i Ł B \$DIIDB K? I>" / ~ B
i fi	1 ; 177C= K 7AC; 7G / GB 7GM 2ID9E7A	& GM \$DJA ; G 1 ; 177C= 5 7A	+ " i ~ B ° * " ~ ž Ł B ° K? I>" / B
i fl	1 ; 177C= K 7AC; 7G- ; K (7C H 2ID9E7A	1 % % G 177C= K 7A	+ " fl Ł B ° * " fi ~ B ° K? I>" ~ fl Ł B
i Ł	' LI ; CH7DC D< G 177C= K 7A C; 7G / 7CEDH 7G 7	& GM \$DJA ; G 1 ; 177C= 5 7A	+ " fl Ž B ° * " ~ } B ° 3DE K? I>" ~ } B \$DIIDB K? I>" ~ ž B
i †	1 ; 177C= K 7AD< & "7G 7. \$: JBE	11 , G 177C= K 7A	+ " / i Ł B ° * " i Ł B 3DE K? I>" i ~ B \$DIIDB K? I>" i Ł B

· ŽŽ/ &\$!/ °°~" ~! #1 \$!~!"žfV &Ł' #Žfi , /# ŁŽŁŽfi %~H"

i Ž	1;17C=C=5 7AC; 7G(C; H +D7: C= EACI K?> =7AC; & G7C	11, G17C=C=K 7A	+ " fi ~ B °* " i Ł B 3DE K? i>" i ~ B \$DIIDB K? i>" i Ł B
i ž	1;17C=C=K 7A- ; 7GA B E +D7: C= /ACI	11, 1;17C=C=5 7A	+ " i ~ B °* " i Ł B 3DE K? i>" i ~ B \$DIIDB K? i>" i Ł B

Annexure-IV
PHOTOGRAPHS SHOWING MITIGATION MEASURES FOR CONTROL OF
RESPIRABLE SUSPENDED PARTICULATE MATTERS (RSPM)



Photograph showing Covered conveyors from feed hopper at Hill top



Imagery showing Covered conveyors from feed hopper at Hill top till Dispatch Point



Photograph showing Bag House installed at secondary Crushing Point



Photograph showing High Pressure Dust suppression installed at Feed Hopper at Hill Top Plant



Photograph showing Wet Drilling



Photograph showing Water sprinkling on Haul Road by 28 KL BEML Water Sprinkler

Annexure-IV
PHOTOGRAPHS SHOWING MITIGATION MEASURES FOR CONTROL OF
RESPIRABLE SUSPENDED PARTICULATE MATTERS (RSPM)

FOR SUPPRESSION OF FUGITIVE DUST AROUND STOCK PILE AREAS AND HAUL ROAD



Photograph showing Fixed water sprinkling system
on Haul Road from Panposh



Photograph showing water sprinkling system on Haul
Road near 600 TPH Plant

Annexure-V OB DUMP RECLAMATION AND REHABILITATION



Vetiver Plantation on Old fines dump



Native grass species broadcasted on D-area OB dump



Plantation of Drought hardy species on D-area OB dump



Coir Matting on DH-5 subgrade dump

Annexure-VI RETAINING WALLS, GARLAND DRAINS, SETTLING PITS and SETTLING PONDS



Settling Pit with Garland Drain surrounding DH-5 Dump.



Compound wall with garland drain around Domestic Garbage yard 2017-18



Retaining Wall with Garland Drain around Panposh OB Dump



Retaining wall around D-area OB dump 2017-18



Plantation of 8000 saplings in 2017-18



Plantation of Drought hardy species over 20ha degraded Forest Land



Native Sal Regeneration over 1 ha of Degraded land near D-area



Water vats provided in plantation sites



Plantation in Safety Zone



Plantation near Panposh Entry Road



Sandbag Checkdam near Tailing Pond to prevent flow of Turbid water.



Contour bunds created to trap rainwater for harvesting.



Trenches dug near G-Area for Rainwater Harvesting



LOBDs across seasonal nalla



LOBRW to retain runoff and replenish groundwater



Gully plugs installed at various junctures to arrest rainwater



LOBDs at Eco-Restoration site catering partially to watering requirements for the plantation in site