NAME OF THE PROJECT:

UNCHABALI IRON & MN. MINES OF SMT. INDRANI PATNAIK

CLEARANCE LETTER NO. & DATE:

MOEF&CC CLEARANCE LETTER NO. J-110515/214/2008 IA.II (M), DATED.23.07.2009.

PERIOD OF COMPLIANCE REPORT:

April, 2023 to September, 2023

Copy to:

The Zonal Officer,
Central Pollution Control Board
Eastern Zonal Office
Kolkata

The Chairman,
Sate Pollution Control Board, Odisha
A/118, Nilakanthanagar, Unit – VIII,
Bhubaneswar – 751 012

The Regional Director,
Central Ground Water Board,
Government of India,
South Eastern Region,
Bhubaneswar – 751 030

INDRANI PATNAIK

(Mines Owner)

A/6, COMMERCIAL ESTATE, CIVIL TOWNSHIP, ROURKELA-769 004

Phone : 0661-2400139, 2400014, FAX : 0661-2402226

REF NO: IP/mm/november23/010 **DATE:** 30.11.2023

To
The Director (S)
Eastern Regional Office,
Ministry of Environment & Forest,
Government of India,
A-3 Chandrasekharpur,
Bhubaneswar – 751 023

Subject : Submission of Environmental Clearance compliances stipulated in approved EC for iron ore production of 4.00 MTPA in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

Reference: 1. Ministry's Clearance letter no. J-110515/214/2008-IA.II (M), dated 23.07.2009 for 4.00 MTPA Iron ore Production.

2. MoEF &CC notification no. 4624 (Published in Gazette of India) Dt. 26.11.2018.

Dear Sir,

With reference to the above cited subject and gazette notification, we are submitting herewith the six monthly compliance report **in soft copy by E–mail** i.e. roez.bsr-mef@nic.in and also uploading the same in our company website for 4.00 MTPA Iron ore production with comprehensive data analysis reports (supporting photographs and monitoring reports) for the period **APRIL 2023 to SEPTEMBER 2023** in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

Thanking you.

Yours Faithfully
For Unchabali Iron and Mn . Mines

30/11/23
Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik
Mahakam

Mines Manager

Enclosed : As above hard compliance copy with detailed analysis report and supporting photographs and monitoring data.

SP. Cond. NO.	SPECIFIC CONDITION	PRESENT STATUS
I.	**The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Orissa, and effectively implement all the conditions stipulated therein.**	As per requirement, the project has been obtained Consent to establish & Consent to Operate from SPCB, Orissa for 4.00 MTPA Iron ore production. The obtained Consent to Operate includes two numbers of 200 TPH mobile crusher plant, two numbers of 150 TPH mobile crusher plant, three numbers of 250 TPH mobile screen plant. The compliance to the conditions stipulated in the approved consent to establish & consent to operate has been implemented effectively. The latest consent to operate compliance report has been submitted to SPCB, Orissa for the year 2022-23, and the same is enclosed as **ANNEXURE-1.**
II.	**Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 103.432ha forest land involved in the project shall be obtained before starting mining operation in that area. Till such time mining activities shall be restricted to an area of 67.16haof forestland for which approval under section-2 of the forest (Conservation) Act, 1980 was granted by the Ministry of Environment and Forests on 03.05.2007. Environmental Clearance is subject to grant of forestry clearance. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance.** **No activity relating to the project shall be undertaken in the forestland for which forestry clearance under the forest**	As per condition, the forest clearance has been obtained from MoEF for an area of 103.432 Ha in two phases under the Forest (Conservation) Act, 1980. First phase forest clearance was obtained on 03.05.2007 for an area of 35.275 Ha., vide MoEF letter no: 8 (21)40/2004-FCE dated 03.05.2007, and second phases forest clearance has been obtained on 31.09.2015 over an area of 68.157 Ha., vide MoEF&CC letter no F.NO.8-67/2014-FC dated on 31.09.2015**.** The copy of the forest clearances obtained from MoEF&CC is attached as **ANNEXURE - 2** (First phase for 35.275 Ha) & **ANNEXURE – 3** (Second phase for 68.157 Ha).

	(conservation) Act, 1980 has not been obtained. The environmental clearance is subject to grant of forestry clearance.	
III.	**The environmental clearance is subject to the approval of the State Land use Department, Government of Orissa for the diversion of agricultural land for Non-agricultural use.**	There is no agricultural land within the mine lease area. Therefore, the said diversion from the state land use department is not applicable.
IV.	**The mining operations shall be restricted to the above groundwater table and it should not intersect the groundwater table. In case of working below the groundwater table, prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained, for which a detailed hydrological study shall be carried out.**	The present mining operation is restricted to above the groundwater table and there is no proposal to intersect the groundwater table as per the approved Scheme of Mining. The Project has carried out detailed hydrology and hydrogeological study through and as per the hydrology study report the groundwater table exists at 478 AMSL and the present mine working operation is above 530 AMSL. In case of groundwater table intersection in the future, the project will abide by the said condition and will get prior approval from CGWA.
V.	**The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. Adequate measures shall be taken for conservation and protection of the seasonal streams if any emanating from the mine lease area during the course of mining operation.** **Appropriate mitigation measures should be taken to prevent pollution of the Baitarani river, in consultation with the State Pollution Control Board.**	No watercourse and/or water resources are being obstructed due to our mining operation. To ensure the same project has been undertaken runoff management study and prepared site-specific runoff management plan through KRG Rain Water Foundation, Chennai. Under the site-specific runoff management plant, the project has undertaken various mitigating measures in and around the mine lease area. **Mines runoff management during monsoon period:** The mines' runoff water is not allowed for direct discharge from the mine lease area. Hence, the entire generation of mines runoff water (during monsoon period) is collected to the bottom of the pit, checks dams and check weirs and after treatment through silt

		cum Sedimentation by giving adequate retention period, the final water is allowed to discharge. However, the entire mine area and check dams/check weirs connectivity is properly made by proper drainage pattern. All the implementations have been carried out with consideration of maximum rainfall and technical design followed as per KRG rainwater harvesting recommendation. The detailed implementation of check dams and check weirs is given in **Table -1**. **Nallah Protections measures:** In addition to the site-specific mitigation measures, the project has been carried out various Nallah protection measures around the mine's premises. The implementations are as follows. ✓ Nallah banks are protected by a Guard wall with proper filtration arrangements to avoid entry of any silt carried over to the water bodies during the rainy season from other sources. ✓ Check weirs/check dams are conferred along the Nallah passing area to persuade silt sedimentations. ✓ Nallah de-siltation is undertaken during the pre-monsoon period to maintain its bio cycle. ✓ Nallah both side slopes are pitched with loose boulders to avoid barrier erosion during the monsoon period. Plantation and Vettiver plantation was carried out all along the Nallah boundaries and a few areas is converted as green

		barriers. The detailed implementation is given in **table -2** and photo evidence for the same is given below. **Water Harvesting:** The project has constructed/ developed four numbers water harvesting ponds in surrounding villages to encourage the water table. The ponds are regularly de-silted and well maintained on regular basis. The detailed implementation is given in **table -3.** **<u>Dump Management:</u>** **Dump Preparation:** Proper terracing, slope level, and sub benches are maintained in all mines waste/subgrade dump. **Retention wall:** Bottom of the OB dump and subgrade dump provided/constructed with adequate size of retention wall to avoid the dump failure during the monsoon period. **Drainage Pattern:** Proper drainage pattern is provided at bottom of the waste/subgrade dumps and other required areas to collect & treat the mine's runoff water. **Coir-mat and plantation:** The surface area of the waste /subgrade dump is covered with plantation/coir geotextile application along with local grass seeds to avoid dump erosion during the monsoon period. The detailed implementation is given in **Table – 4.** **Photo evidence is given below as PHOTOS-1.**

VI.	**The topsoil, if shall temporarily be stored at the earmarked site(s) only and should not be kept unutilized for long, topsoil should be used for land reclamation and plantation.**	No topsoil was generated during this reporting period because the current mining operation is restricted within the already diverted forest area and there is no new development in the reporting period. In case top soil generation takes place in the future, it will be stored in an earmarked area and necessary safeguard measures will be undertaken to preserve its nutrient values so that it will be used for future land reclamation and raising of plantations.
VII.	**The project proponent shall not undertake beneficiating of the mineral as part of this project. For understanding beneficiation, necessary prior approval under the provisions of EIA Notification, 2006 shall be obtained.**	In this regard project has been obtained Environment clearance from the Ministry of Environment & Forest, Government of India vide letter no. J-11015/273/2009-IA.II (M) dated 31.05.2011 for setting up an iron ore beneficiation plant for a capacity of 2.0 MTPA (2 x 185 TPH). A copy of the same has been given as **Annexure – 4.** The same got established inside the mines and was in operation till Jan 2016. In the meantime, the detailed mineral exploration indicated that there is no such requirement of beneficiation of iron ore. Accordingly, the mining plan got approved by the Indian Bureau of Mines, Govt. of India vide No. MS/FM/25-ORI/BHU/2017-18 dated 10.11.2017 by mentioning that there is no more requirement for beneficiation of iron ore as "*the total ROM will be handled by the dry method of size separation with the help of crusher and screen plants, so there will no requirement of wet beneficiation plant due to the following reasons:* ***After detailed exploration, the resource has been estimated under G1 category. No additional resource has been established by drilling. The average grade of iron ore is coming around 62% Fe. Based on the estimation of the resource, it can be observed that only 10% of the total quantity is coming under sub-grade ore. That sub-grade ore can easily be bendable with high-grade ore. Hence, it is not worth using the wet beneficiation plant as far as cost-benefit analysis is concerned.*** In view of the above, we would like to inform

		you that; since there is no such requirement for beneficiation of ore, so we have dismantled the 2.0 MTPA iron beneficiation plant located within our mines premises and the same got informed to your good office through our letter no. IP/MM/OCTOBER 19/004 dated 03.10.2019. The copy of the submission of the letter at your good office is enclosed as **ANNEXURE – 4 & 4A** & the copy of the approved mining plan is enclosed as **Annexure – 5.**
VIII.	**The overburden (OB) generated during the mining operation shall be temporarily stacked at the earmarked dump site(s) only for backfilling. Backfilling shall commence from the year 2011-2012 onwards. The accumulated waste shall be liquidated by the year 2016 and there shall be no external dump thereafter. The back-filled area shall be reclaimed by the plantation. Monitoring and management of rehabilitated areas shall continue until vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional office, Bhubaneswar on a six-monthly basis.**	The generated overburden and / waste is stacked at earmarked dump site As per the approved review of mining plan duly approved by Indian Bureau of Mines, Govt. of India vide No. MRMP/A/04-ORI/BHU/2021-22/904 dated 10.09.2021, 2670480 CUM quantity of overburden/ waste has to be backfilled for the period of 2021-23. Accordingly, the project has backfilled 2991775 Tons quantity of waste inside the mines at the earmarked area till For this reporting year of 2022-23. *As the concurrent backfilling* is going on and it will continue once it reaches its ultimate level. However, the existing O.B/ waste dump is properly stabilized at an earmarked area with proper terracing, dozing, sloping, etc. with the construction of a retaining wall followed by garland drains at the toe of the dump.
IX.	**Catch drains and siltation ponds of appropriate size should be constructed around the mine working the soil, mineral and temporary OB dumps to prevent runoff water and flow of sediments directly into the Baitarani river, the Jalpanadi, the Kasinallah, the Dolkonallah, Dalkinallah, the Ghaghara nallah, the Jagdharanadi, the Gahirjalanallah,**	The project has undertaken various Mitigate measures on the above. The detailed implementation is as follows. **<u>Dump Management:</u>** **Dump Preparation:** Proper terracing, slope level, and sub benches are maintained in all mines waste/subgrade dump. **Retention wall:** Bottom of the OB dump and subgrade dump provided/constructed

	the Mithida spring, and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development, etc. The drains shall be regularly de-silted particularly after the monsoon and maintained properly. Garland drains, settling tanks, and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and the temporary OB dumps to prevent runoff water and flow of sediments directly into the Baitarani river, the Jalpanadi, the Kasinallah, the Dolkonallah, Dalkinallah, the Ghagaranallah, the Jagdharanadi, the Gahirjalanallah, the Mithida spring and other water bodies and dump 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. Dump capacity should also provide an adequate retention period to allow the proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals.	with adequate size of retention wall to avoid the dump failure during the monsoon period. **Drainage Pattern:** Proper drainage pattern is provided at bottom of the waste/subgrade dumps and other required areas to collect & treat the mine's runoff water. **Coir-mat and plantation:** The surface area of the waste /subgrade dump is covered with plantation/coir geotextile application along with local grass seeds to avoid dump erosion during the monsoon period. **Mines runoff management during monsoon period:** The mine's runoff water is not allowed to be directly discharged from the mine lease area. Hence, the entire generation mines runoff water (during monsoon period) is collected to the bottom of the mines pit, checks dams and check weirs and after treatment (Silt Sedimentation by giving adequate retention period) process the final water is allowed to discharge. However, the entire mine area and check dams/check weirs connectivity is properly made by a preplanned drainage pattern. All the implementations have been carried out with consideration of maximum rainfall and technical design is followed as per KRG rainwater harvesting recommendation. **Nallah Protections measures:** In addition to the site-specific mitigation measures, the project has been carried out various Nallah protection measures around the premises of the mine. The implementations are as follows. ✓ Nallah banks are protected by a Guard wall with proper filtration

		arrangements to avoid entry of any silt carried over to the water bodies during the rainy season from other sources. ✓ Check weirs/check dams are conferred along the Nallah passing area to persuade silt sedimentations. ✓ Nallah de-siltation is undertaken during the pre-monsoon period to maintain its bio cycle. ✓ Nallah both side slopes are pitched with loose boulders to avoid barrier erosion during the monsoon period. ✓ Plantation and Vettiver plantation was carried out all along the Nallah boundaries and a few areas is converted as green barriers. **Water Harvesting:** The project has been constructed/ developed four numbers of water harvesting ponds in surrounding villages to encourage the water table. The ponds are regularly de-silted and well maintained regularly.
X.	**Dimension of the retaining wall at the toe of the temporary overburden dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.**	Based on rainfall data, the retaining wall has been constructed at various locations like the bottom of the OB dump, subgrade dump & other required areas to check the runoff. Photos Are Attached Below As **PHOTO-2**
XI.	**Plantation shall be raised in an area of 98.8627ha including a 7.5 m green belt in the safety zone around the mining lease, backfilled and reclaimed area, mine benches, along the roads, etc. by planting the native species**	As per condition, the plantation will be raised for an area of 98.8627 Ha after completion of the mines life/end of the mine operation in mine lease, backfilled area, and reclaimed area, mine benches, along with the roads, etc. However, during running mine operation project has carried

	in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2500 plants per hectare. **A green belt of adequate width shall be developed all around the plant by planting the native species in consultation with the local DFO/Agriculture department within the first five years.**	Plantation at various locations like a safety zone, waste dump, mines plant area, mines haul road, village roads, villages schools, and railway sidings in consultation with the local DFO. Till reporting period a total number of 105803 numbers of saplings has been planted which comprises of gap-filling planation over the years on the damaged area/replacement of the dead plants and the survival rate is 70%, on an average of 74062 species survived up to this reporting period. In this reporting period we have planted 6500 No. in the mines dump area and safety zone gap plantation. The comprised year-wise plantation details are enclosed as **TABLE-5A** and the type of plants planted in the year was given in **TABLE- 5B**. Photo evidence for the plantation inside and out lease area is given below. Photos Are Given Below As **PHOTOS-3**
XII.	**Effective safeguard measures such as regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading and unloading point, and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.** **The Project Proponent shall carry out the conditioning of the ore with water to mitigate fugitive dust emission.** **Necessary safeguard measures shall be taken for effective control of particulate levels (PM10) in the area. The safeguard measures shall**	The project has implemented a different type of dust suppression system to arrest the air pollution from the source level in and around the mine's premises. The detailed implementations are as follows. ✓ Fixed type water sprinklers of the length of 1500 meters implemented in mines permanent haul roads and dispatch roads. ✓ Mines benches, temporary haul roads, and other processing areas dust generation are suppressed by the use of mobile water tankers. In this regard, the project has engaged three no. of 12 KL mobile water tanker, which is inbuilt with a high-pressure hydraulic sprinkling system. ✓ Three numbers of 8 KL capacity mobile water tankers are being used for dust suppression in the Public

	be implemented within the first three months and their effectiveness shown with supporting data of actual air quality monitoring.	roads, railway sidings approaching roads & railway yards. Haulage roads are being maintained with grader and water sprinkling to avoid any sort of ruts and potholes. Detailed implementation is given in **table – 6**. **DUST SUPPRESSION IN CRUSHER & SCREEN PLANT:** An effective dry fog system is implemented in all the crusher and screen plants. To avoid the flow of air-born dust from conveying belt movement the conveyor belts of crusher and screen Plants are covered with hoods. **MONITORING** The monitoring of AAQ is being done in the core as well as the buffer zone of the ML area, there are 4 no. of monitoring stations in the core zone i.e. Mines Entry and exit area, employees camp, New store area, and near office area and there are 3 no. of monitoring stations in the buffer zone such as Unchabali Village, Balda Village, Nayagarh Village, Monitoring of AAQ is carried out every month. The monitoring report reveals that parameters like PM10, PM2.5, SO2, and NOx are well within the norms as per NAAQs notifications made by the CPCB. A comprised AAQ monitoring report for the reporting period is enclosed as **TABLE.-7.** Photos Are Given Below As **PHOTOS-4**
XIII.	**Regular monitoring of the flow rate of the springs and perennial Nallah shall be carried out and records maintained.**	Regular monitoring of the flow rate of different water bodies is being carried out seasonally by covering the Nallah/rivers i.e. Baitarani River, Unchabali Nallah, Kashi Nallah, Jalpa Nallah, Gahirajala Nallah, Dolko Nallah & Dalki Nallah. The latest flow rate monitoring reports are enclosed as **TABLE-8.**

XIV.	**Regular monitoring of water quality upstream and downstream of the Kasinallah, the Dolkonallah, the Dalkinallah, the Ghagranallah, the Gahirajalanallah, and the Mithida spring shall be carried out and record of monitored data should be maintained and submitted to the Ministry of Environment and Forest, its Regional Office, Bhubaneswar, the Central Ground Water Authority, the Regional Director, the Central Ground Water Board, the State Pollution Control Board and Central Pollution Control Board.**	Monitoring of water quality of Baitarini River, Unchabali Nallah, Kasi Nallah, Jalpa Nallah, Gahirjala Nallah, Mithida Spring, and Dalco Nallah is being carried out seasonally. The monitoring data results are very well within the norms. The data is being maintained and submitted to authorities regularly. The latest surface water quality report analyzed during the last monsoon is enclosed as **Annexure - 6.**
XV.	**The project authority should implement suitable conservation measures to augment ground resources in the area in consultation with the Regional Director, Central Ground Water Board.**	In this regard, the project has been engaged KRG RAINWATER FOUNDATION, CHENNAI in consultation with Regional Director, CGWB, and Bhubaneswar for technical guidelines and implemented various conservation measures to augment the groundwater resources in and around the mine lease area. The detail for the same is as follows; **ROOFTOP RAINWATER HARVESTING:** Rooftop rainwater harvesting system has been implemented at mines employee camp and Unchabali Medical Center towards water augment. The technical design and other parameters are followed as recommended by KRG rainwater harvesting with the consultation of the regional director, CGWB, Bhubaneswar. From this establishment 4200, CUM/ANNUAL water is recharged to the ground. The project has developed/ constructed four numbers of water harvesting ponds in mines surrounding villages to encourage water to augment. The ponds are regularly de-silted and well maintained. Total harvesting pond water holding capacity is 1.5 Lakh

		CUM/ANNUM. The details are given in **TABLE.-3.** **SETTLING CUM PERCOLATION POND & CHECK DAMS:** Based on the hydrology study the project has implemented five check dams where the soil is having a high percolation rate and one percolation pond is provided at the south side ML area by considering the water flow. The same details are given in **TABLE.NO.-1.** **The photo evidence is attached as PHOTOS-5**
XVI.	**Regular monitoring of groundwater level and quality should be carried out around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year Pre-monsoon (April-May), Monsoon (August), Post monsoon (November) and Winter (January); once in each season)] shall be carried out in consultation with the state Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to Ministry of Environment and Forests and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground 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.**	- **GROUNDWATER QUALITY:** Groundwater quality is being monitored regularly by seasonally at 6 locations including core and buffer zone. The monitoring locations are namely 1) Inside Mining lease area, 2) Unchabali village, 3) Balda Village, 4) Nayagarh Village, 5) Belda Village, 6) Employee's camp. The latest groundwater quality report is enclosed as **Annexure - 7.** - **GROUNDWATER LEVEL:** The groundwater level is being monitored seasonally i.e. pre-monsoon, monsoon, post-monsoon, and winter. The latest groundwater level report is given in **Table-09.** - - **INSTALLING OF PIEZOMETER:** The project has installed Piezometers at mines observation bore wells. The groundwater fluctuations are being observed in the bore well & results are recorded at regular intervals. The latest month piezometer observation data is given **as ANNEXURE -8.**
XVII.	**Appropriate mitigation measures should be taken to prevent**	Site-specific mitigation measures to prevent silt carried into nearby natural water bodies

	pollution of the Baitarani river, the Jalpanadi, and Jagdharanadi in consultation with the State Pollution Control Board.	got implemented like; surface run-off management structures, retaining wall followed garland drains, check dam, settling cum percolation ponds, etc. Apart from that, guard walls have been constructed across the bank of the natural water bodies. The above structures got developed in consultation with SPCB, Orissa. The detailed Site implementation details are given in **TABLE.NO.-1, 2, 3 & 4**.
XVIII.	**The project proponent shall obtain the prior permission of the competent Authorities for the drawl of the requisite quantity of water (surface water and groundwater) required for the project.**	The project has obtained the groundwater NOC from Central Ground Water Authority vide letter No.21-4 (88YSER/GGWA/2008-1903 for withdrawal quantity of 1175 CUM/Day of groundwater. The annexure was attached herewith as **Annexure – 9.** The renewal application for the same is submitted online, it is under progress.
XIX.	**Suitable rainwater harvesting measures on a long-term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.**	- **ROOFTOP RAINWATER HARVESTING:** The project has implemented a rooftop rainwater harvesting system at the project employee's camp and Unchabali Medical Center towards groundwater re-charges. The technical design and other parameters are followed as recommended by KRG rainwater harvesting with the consultation of the regional director, CGWB, Bhubaneswar. From this establishment 4200, CUM quantity of groundwater is recharged to the groundwater table every year. - **WATER HARVESTING PONDS AT VILLAGES:** The project has developed four numbers of water harvesting ponds to encourage water percolation and water harvesting in surrounding villages. The ponds are regularly de-silted and well maintained. Total harvesting pond water holding capacity is 1.5 lakh CUM/ANNUM. Details of harvesting ponds developed in surrounding villages are given in **TABLE NO.-3.**

		- **PERCOLATION POND & CHECK DAMS:** Based on the hydrology study the project has implemented five check dams, settling cum percolation pits where the soil is having a highly percolating rate and one number of percolation ponds is provided at the south side of the broken up area. Details of check dams and check weirs are following as **TABLE NO.-1**.
XX.	**Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for the maintenance of vehicles used in mining operations and transportation of minerals. The mineral transportation shall be carried out through the covered trucks only and vehicles carrying the mineral shall not be overloaded. No transportation of ore outside the mine lease area shall be carried out after the sunset.**	The project is ensuring vehicle emission monitoring for all mining and other supporting vehicles/equipment. The monitoring of vehicle emission is carried out through Diesel Smoke Meter by Pollution Testing Centre. A sample HEMM emission test result is attached as **ANNEXURE-10.** Apart from testing of transporting vehicles emission on a random basis, the project has been introduced a software technology RF-ID system in entry gate of the mines, this system is having automatic functions to read the status of the vehicle pollution certificate validity and other relevant parameters. The mineral transportation is being carried out through the covered trucks only and vehicles carrying the mineral shall not be overloaded.
XXI.	**No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during daytime. Controlled blasting shall be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.**	No blasting is carried out after the sunset and blasting are carried out only in the daytime. The control blasting is practiced using a larger top stemming column, the Nonel technology, and proper blast design& firing pattern with effective supervision of total blasting operations as per the recommendation of the CIMFR, DHANBAD. As of date, no records reveals beyond the permissible limit during the reporting period. a sample report is enclosed as **ANNEXURE - 11.**
XXII.	**Drills shall either be operated with dust extractors or equipped with a water injection system.**	The drilling operation is being carried out with both a dust extractor and a water injection system. Presently the project is

		using an excavator-mounted drill machine for drilling operation. The said drilling machine is inbuilt with both a water injection system and dust extraction systems. The photo evidence for the same is given below. PHOTO evidence is given below as **PHOTOS-6**
XXIII.	**A mineral handling plant should be provided with an adequate number of high-efficiency dust extraction systems. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.**	1) Effective dry fog system is implemented in all the crusher and screen plants. 2) The conveyor belts of the crusher and screen Plants are covered with hoods. 3) Regular water sprinkling is carried out in the loading and unloading area.
XXIV.	**A sewage treatment plant should be installed for the colony. ETP should also be provided for workshops and wastewater generated during the mining operation.**	STP is provided/implemented along with the skimmer mechanism at the mines employee's camp for treatment and reuse of the waste domestic water from the Kitchen, toilet, etc. The treated water is used for plantation and dust suppression activities. ETP is provided at mines workshop for the treatment of wastewater from water service of equipment. The existing ETP is having a physical separation of oil and grease by oil trapping system and silt sedimentation pit. Both STP and ETP final discharge water is being monitored fortnightly once to ensure the final discharge water is in line with the approved CTO and record maintained for the same. The latest monitoring data is enclosed here as **Table. No – 10 and Table. No 11.** Photo evidence is given below as **PHOTOS-7**
XXV.	**Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For this purpose, a schedule of health examinations of the workers should be drawn and**	Initial Medical Examination & Periodical Medical Examination is being carried out to all company & contractors employees on regular basis. The IME & MPE is being carried as per in compliance to Mines Act 1952 & rules 1956 and amendments thereto. The IME & PME tests include PFT, X-Ray, and lung spirometer, etc.

	followed accordingly.	
XXVI.	**The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear, etc. spotted in the study area. An action plan for the conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the wildlife conservation plan prepared specifically for this project site shall be effectively implemented. Necessary allocation of the funds for implementation of the conservation plan shall be made and funds so allocated shall be included in the project cost. A copy of the action plan may be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.**	The Site-Specific Wildlife Conservation Plan got prepared by Sri. S. K. Patnaik, Retd. IFS & Shri S.K.Mohanty, Retd. OFS with an estimated cost of Rs. 104 lakh and approved by PCCF-Wild Life and Chief Wild Life Warden. In which Rs. 34 lakh has been earmarked for implementation of Site-Specific Wild Life Conservation Plan within the Mining Lease area and Rs. 70 Lakh has been earmarked for implementation for the purpose in the buffer zone i.e. within the zone of influence. An amount of Rs. 15, 91, 691/- rupees has been made towards Regional Wild Life Management Plan and Rs. 21, 75, 000/- rupees towards the site-specific Wild Life Management Plan. Various activities have been undertaken towards the protection of wild animals by the implementation of solar electric fencing in mines operation boundary area to avoid the fall down of any wild animals to mines operation, awareness program among local and staffs members, etc. The approved budgetary forecast for the site-specific wildlife conservation plan is enclosed as **ANNEXURE – 12**.
XXVII.	**Provision shall be made for the housing of the construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.**	Not Applicable. As there is no such construction activity
XXVIII.	**The critical parameters such as SPM, RSPM, NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation,**	All these critical parameters are being monitored periodically & uploaded on the company website i.e. www.uimm-ip.com. The said monitored parameters i.e. for AAQ; PM10, PM2.5, SO2, NOx, STP, ETP

	whichever is closer shall be monitored periodically. Further, the quality of discharge water shall also be monitored [TDS, DO, pH, and total suspended solids (TSS)]. 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 the public domain. The circular no. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	discharge, for surface runoff discharge from the mine (treated), etc. is being displayed through an Electronic display board installed at the main gate of the project site of the company for the public domain. photo of the display board are given below AS **PHOTO-8.**
XXIX.	**A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.**	The Project has submitted a bank guarantee of Rs. 17,43,693/-for reclamation and rehabilitation of 69.7477 Ha mined out and other allied activities area @ 25, 000/- Ha as a part of the management of the closure of the mines of the Project.

Six Monthly Compliance Status of Environmental Clearance Conditions – "Unchabali Iron and Manganese Ore Mines of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Orissa.

<table>
<tr><th>Sl. No</th><th>General condition</th><th>Present Status</th></tr>
<tr><td>I.</td><td>No change in mining technology and scope of work should be made without prior approval of the Ministry of Environment & Forest.</td><td>The Mining method of the project is fully mechanized having shovels, dumper combinations, and sorting and sizing of Iron Ore and it's being followed as per the approved Scheme of Mining/Plan.</td></tr>
<tr><td>II.</td><td>No change in the calendar plan including excavation, the quantum of mineral iron ore, and waste should be made.</td><td>There is no change in the calendar plan, the excavation, quantum of mineral iron ore, and waste are being produced as per the approved mining plan/scheme. The details of the iron ore and waste are as follows;
<table>
<tr><th>Year</th><th>Approved Quantity (In Mt.)</th><th>ROM (In Mt.)</th><th>OB Removed (In Mt.)</th></tr>
<tr><td>2020-21</td><td>3999982</td><td>3000660</td><td>5132818</td></tr>
<tr><td>2021-22</td><td>3989312</td><td>1621310</td><td>4240920</td></tr>
<tr><td>2022-23</td><td>3999752</td><td>1054740</td><td>2991775</td></tr>
</table></td></tr>
<tr><td>III.</td><td>At least Four Ambient Air Quality – Monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2& NOX monitoring. The 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.</td><td>The monitoring of AAQ is being done in the core as well as the buffer zone of the ML area, There are 4 no. of monitoring stations in the core zone i.e. and there are 3 no. of monitoring stations in the buffer zone such as Unchabali Village, Balda Village, Nayagarh Village, Monitoring of AAQ is carried out every month. The monitoring report for the period of October to March 2023 reveals that parameters like PM10, PM2.5, SO2, and NOx are as per NAAQs notifications made by the CPCB, are very well within the norms. The detailed monitoring location is enclosed as ANNEXURE-13.</td></tr>
<tr><td>IV.</td><td>Data on ambient air quality (RPM, SPM SO2&NOx) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar, and the State Pollution Control Board / Central Pollution Control Board once in six months.</td><td>Data on ambient air quality (PM10, PM2.5, and SO2 & $NO_{x)}$ is being submitted once in yearly is to State Pollution Control Board.</td></tr>
<tr><td>V.</td><td>Fugitive dust emissions from all the sources should be controlled regularly water spraying</td><td>The project has implemented a different type of dust suppression system to arrest the fugitive dust emission from the source level in and</td></tr>
</table>

	arrangement on haul roads, loading and unloading and transfer points should be provided and properly maintained.	around the mine's premises. The detailed implementations are as follows. ✓ Fixed type water sprinklers are implemented in mines permanent haul roads and dispatch roads. ✓ Mines benches, temporary haul roads, and other processing areas dust generation are suppressed by the use of mobile water tankers. In this regard, the project has engaged three no. of 12 KL mobile water tanker, which is inbuilt with a high-pressure hydraulic sprinkling system. ✓ Three numbers of 8 KL capacity mobile water tankers are being used for dust suppression in the Public roads, railway sidings approaching roads & railway yards. ✓ A portable type trolley mounted sprinkler has been placed in loading & unloading points to avoid dust generations. ✓ Haulage roads are being maintained with grader and water sprinkling to avoid any sort of ruts and potholes. The latest monitoring report is enclosed here as **Table. No – 12.**
VI.	**Measures should be taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in operations of HEMM, etc. should be provided with earplugs/muffs.**	Regular maintenance of HEMM & Processing plants is being carried out to minimize the noise level from the source. Apart from that, proper PPEs like an earplug, muffles are also provided to employees. Further, to ensure the noise limit, regular noise monitoring is carried out on fortnightly basis for work zones like crusher plant premises, screen plant premises, ROM loading point, beneficiation plant premises, grilling area & workshop. The noise levels are well within prescribed norms, the monitoring reports are given in **Table -13.**
VII.	**Industrial wastewater (workshop and wastewater from the mine) should be properly collected,**	STP is provided/implemented at mines employee's camp for treatment and reuse of the waste domestic water from the Kitchen, toilet,

	treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease traps should be installed before the discharge of workshop effluents.	etc. The treated water is used for plantation and dust suppression activities. ETP is provided at mines workshop for the treatment of wastewater from water service of equipment. The existing ETP is having a physical separation of oil and grease by oil trapping system and silt sedimentation pit. Both STP and ETP final discharge water are being monitored fortnightly once to ensure the final discharge water is in line with the approved CTO and record maintained for the same. The test results are very well within the norms. The latest monitoring report is enclosed here as **Table. No – 10and Table. No 11.**
VIII.	**Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures if needed**	Initial Medical Examination & Periodical Medical Examination is being carried out to all company & contractors employees on regular basis. The IME & PME is being carried as per in compliance to Mines Act 1952 & rules 1956 and amendments thereto..The IME & PME tests include PFT, X-Ray, and lung spirometer, etc..
IX.	**A separate environmental management cell with suitably qualified personnel should be set up under the control of a senior executive, who will report directly to the head of the organization**.	We have established an Environmental Cell headed by the General Manager to look after the implementation of the various pollution control measures and other Environment Management System requirements. The detail of the Environment Cell structure is enclosed as **ANNEXURE- 14.**
X.	**The funds earmarked for environmental protection measures should be kept in a separate account and should not be diverted or other proposes. Year-wise expenditure should be reported to the Ministry and Regional Office located at Bhubaneswar.**	The funds earmarked for environmental Protection are being utilized for the same only. The same expenses details are mentioned in **Table no.-14**
XI.	**The project authorities should**	We will abide by the said condition.

	inform the Regional Office located at Bhubaneswar regarding the date of financial closures and final approval of the project by the concerned authorized and the date of start of land development work.	
XII.	**The Regional Office of the Ministry located at Bhubaneswar shall monitor complaints of the stipulated conditions. The project authorities should extend full co-operations to the officer (S) of the regional office by furnishing the requisite data/information/ monitoring reports.**	We are extending all our cooperation during inspections by the Authority.
XIII.	**The project proponent shall submit six-monthly reports under the status of the implementation of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environmental and Forests, its regional Office, Bhubaneswar, the respective zonal offices of CPCB and the SPCB. The proponent shall upload the status of the EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of CPCB, and the SPCB.**	The Project is uploading the last six-monthly EC Compliance reports on the website bearing address www.uimm-ip.com on regular basis. The details of submission of the six-monthly compliance reports on the status of the implementation of the stipulated conditions are enclosed as **TABLE NO.-15.**
XIV.	**A copy of clearance latter shall be sent by the proponent to concerned Panchayat, Zillah Parishad /Municipal Corporation, Urban local body, and local NGO, if any, from whom**	It has been complied with intimating the letters to local Gram Panchayat, Municipality, DDM Office, Zillah Parishad, Divisional Forest Officer, etc. and a copy of environmental clearance letter also made available in the company's website i.e. www.uimm-ip.com.

	suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	
XV.	**The 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.**	It has complied.
XVI.	**The environment statement for each financial year ending 31st March in form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent the Regional Office of the Ministry of Environment and forests, at Bhubaneswar by e-mail.**	The Environmental statement in Form – V is being submitted regularly to the state pollution control board for the financial year. We are also uploading the annual environment statement along with the six-monthly environmental compliance reports on the company website i.e. www.uimm-ip.com. The latest Form – V for the FY 2022-23 is submitted to the board, copy enclosed as **ANNEXURE – 15**.
XVII.	**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 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 Board and also at the web site of the Ministry of Environment and Forests at HTTP: / / envfor.nic.in and a copy of the**	The Project has already advertised for iron ore mining and projects in two newspapers about the issuance of the environment clearance of the Project, one is advertised in the vernacular language of the locality concerned.

	same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	
XVIII.	**The mining leaseholder shall, after ceasing mining operations, undertake re-grassing the mining area, and any other areas which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna, etc.**	At present project is in operational status and as per the mining plan approved by IBM, 2991775 Tons quantity of waste inside the mines at the earmarked area till in this Fy 2022-2023. As per approved Scheme of Mining. Whenever the reclamation started leaseholder was ready to make activities to restore the land to a condition that is fit for the growth of fodder, flora, fauna, etc.

PHOTOS-1:

Photo showing check dams & Check weirs implementation within ML


Photo Showing varies Nallah protection measures undertaken outside ML


Photos showing village harvesting pond developed in surrounding villages

PHOTOS -2:


Retaining wall provided at the toe end of the dump

PHOTOS -3:

Photos showing various area plantations undertaken

PHOTOS -4:


Photos showing mobile water tankers engaged for dust suppression


Photos showing automatic fixed sprinkler installed at mines permanent Haul road


Photo showing motor grader under use for road maintenance

Photos showing dry fog implementations of various screens and crusher plant.

PHOTOS -5:

Six Monthly Compliance Status of Environmental Clearance Conditions – "Unchabali Iron and Manganese Ore Mines of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Orissa.

PHOTO SHOWING ROOF RAINWATER HARVESTING SYSTEMS EMPLOYEE'S CAMP

PHOTO SHOWING ROOFTOP RAINWATER HARVESTING SYSTEMS UNCHABALI DISPENSARY

Photos showing village harvesting pond developed in surrounding villages

PHOTOS – 6:

Photo Showing Excavated Mounted Drilling Machine equipped with dust extractor & wet drilling mechanism

PHOTOS -7:

PHOTO SHOWING ETP PLANT PROVIDED IN WORK SHOP SERVICE CENTER

PHOTOS SHOWING STP EXISTING PLANT

PHOTOS – 8:

Photo Showing Electronic Display board placed in the mines entrance gate to display the Environmental parameters

TABLE – 1

SL.NO	Description	Dimensions/Capacity
1	Check Dam cum Settling pond -1	9800 CUM
2	Check Dam - 4	689 CUM
3	Check Dam - 5	2000 CUM

 # TABLE – 1 SHOWING CHECK DAM AND CHECK WEIR DETAILS IMPLEMENTED WITHIN THE ML AREA

TABLE-2

SL.NO	Description	Location	Dimensions/Capacity
1	Check Dam - 13	21⁰ 52' 41.96" N 85⁰ 25'41.97" E	15 M X 2 M X 1.5 M
2	Check Dam - 14	21⁰ 52' 42.88" N 85⁰ 25'50.81" E	15 M X 1.5 M X 1.5 M
3	Check Dam - 15	21⁰ 52' 36.75" N 85⁰ 25'58.75" E	10 M X 1.5 M X 1.5 M
4	Check Dam - 16	21⁰ 52' 35.55" N 85⁰ 25'59.51" E	12 M X 1.5M X 1.5 M
5	Guard Wall	21°52'41.14"N 85°25'54.05"E	300 M
6	Nallah Slope pitching	21°52'45.66"N 85°25'2.67"E	-
7	Plantation	21°52'41.59"N 85°25'53.87"E	150

 # TABLE – 2 SHOWING CHECK DAMS IMPLEMENTATION OUT SIDE THE ML

TABLE-3

SL.NO	DESCRIPTION	CAPACITY IN CUM
1	NAMIRA POND -1	8100
2	NAMIRA POND -2	92400
3	BELDA POND -1	13200
4	BELDA POND -2	43160

 # TABLE – 3 SHOWING IMPLEMENTED VILLAGE HARVESTING PONDS DETAILS

TABLE-4

Sl. No	Description of the dump	Location of the dump	Protections Measures
1.	Over Burden – 2	Near Garage	0.684 Ha of dump surface area covered with Geotextile applications. And 750-meter retaining wall has been constructed followed by a siltation pond; drainage water is connected to bottom check dams.
2.	Over Burden-3 & 4	Near Pillar No L2	0.941 Ha. of dump surface are covered with Geotextile application. A retaining wall along with garland drainage is constructed with a settling pit. 150 Meters. of Hume pipe drainage patterns have been constructed.

 # TABLE-4 SHOWS VARIOUS DUMP PROTECTIONS MEASURES IMPLEMENTATION

TABLE-5A

Plantation Details as of 2022-2023				
Sl. No	**Year**	**Number of Saplings**	**Survival Rate**	**Remarks**
1	2023-2024	26746	90%	Dump and Gap plantation and plantationck filled area
2	2022-2023	6500	90%	Dump and Nallah Gap plantation and safety zone gap plantation
3	2021-2022	4200	90%	Nallah Gap Plantation
4	2020-2021	1250	70%	Dump and Safety zone
5	2019-2020	1850	80%	Dump and gap plantation

 # TABLE-5A SHOWING YEAR-WISE PLANTATION DETAILS

TABLE-5B

SL. NO	LOCATION	Description	2023-24	Area in Ha.	PLANTS TYPE	Remarks
1	IN Side ML	Dump Plantation	26746	8.715	Neem, karanja, Chakunda, Radha chuda, krishna chuda,cha kunda, saru cha kundha, karanja,siru tree, Arjuna.	New Planattion(OB dump No. 01,02,03 & 04)
2						

 # TABLE-5B SHOWING PLANTATION DETAILS

TABLE-6

SL. No.	Description	Unit	Quantity	Remarks
1	Automatic Fixed Sprinkler	R.M	2500	Dispatch Road and Permanente Haul Road
2	High-Frequency mobile water Tanker	25 KL	3	Mines Benches, Stockyard, plant area, and other mines premises including Village Roads & Railway Sidings
3	Mobile water tanker	8 KL	3	

 # TABLE-6 SHOWING PRACTICE OF DUST SUPPRESSING ACTIVITIES

TABLE-7

SUMMARIZED AMBIENT AIR QUALITY MONITORING REPORT: UNCHABALI IRON & MN ORE MINING PROJECT OF SMT. INDRANI PATNAIK, DISTRICT; KEONJHAR, ORISSA.							
Period: April 2023 To September 2023							
	Month	**Quality Parameter, Results, micro.gm/CUM**					
		Range	**PM10**	**PM2.5**	**SO_2**	**NO_x**	**CO**
AAQ-C1 – Mines main gate (Core zone)	Apr-23	AVG	78.2	35.3	8.8	24.5	0.328
	May-23		78.7	35.6	8.8	24.7	0.330
	June-23		70.9	32.0	7.9	22.2	0.297
	July-23		47.3	23.4	5.9	16.4	0.219
	Aug-23		52.4	20.8	5.2	14.4	0.193
	Sep-23		60.4	31.5	7.8	21.9	0.293
AAQ-C2 – Employees Camp (Core Zone)	Apr-23	AVG	79.8	37.4	9.1	25.0	0.333
	May-23		80.3	37.6	9.0	25.2	0.335
	June-23		72.3	33.9	8.1	22.7	0.302
	July-23		50.2	25.0	6.0	16.7	0.223
	Aug-23		48.4	22.0	5.3	14.7	0.196
	Sep-23		71.2	33.4	8.0	22.3	0.297
AAQ-C3-New Store (Core Zone)	Apr-23	AVG	81.7	36.6	9.2	25.6	0.346
	May-23		82.3	36.9	9.2	25.8	0.348
	June-23		74.0	33.2	8.3	23.2	0.313
	July-23		52.2	24.5	6.1	17.1	0.231
	Aug-23		50.5	21.6	5.4	15.1	0.204
	Sep-23		72.9	32.7	8.2	22.9	0.308
AAQ-B2 Village Balda (Buffer Zone)	Apr-23	AVG	59.3	26.8	6.6	18.6	0.251
	May-23		60.9	27.5	6.8	19.1	0.258
	June-23		57.3	25.9	6.4	18.0	0.242
	July-23		35.3	16.6	4.1	11.5	0.155
	Aug-23		41.3	18.6	4.6	12.9	0.175
	Sep-23		75.1	33.9	8.4	23.5	0.318
AAQ-B3 Village Nayagarh (Buffer Zone)	Apr-23	AVG	61.1	27.6	6.8	19.2	0.258
	May-23		62.8	28.4	7.0	19.7	0.265
	June-23		59.0	26.47	6.6	18.5	0.250
	July-23		37.8	17.1	4.2	11.8	0.160
	Aug-23		42.5	19.2	4.8	13.3	0.180
	Sep-23		77.3	34.9	8.7	24.2	0.327
AAQ-B1 Village Unchabali (Buffer Zone)	Apr-23	AVG	58.2	26.3	6.5	18.2	0.246
	May-23		59.7	27.0	6.7	18.7	0.253
	June-23		56.1	25.4	6.3	17.6	0.237
	July-23		36.0	16.2	4.0	11.3	0.152
	Aug-23		40.5	18.3	4.5	12.7	0.171
	Sep-23		73.6	33.2	8.2	23.1	0.311
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.							

Monitoring is done through CAAQMS							
CAAQMS-C1 MINES ENTRY AND EXIT GATE	Apr-23	AVG	61.24	31.52	8.62	16.23	0.39
	May-23		77.53	39.57	8.15	15.74	0.11
	June-23		62.44	21.43	12.09	18.31	0.32
	July-23		56.22	51.23	13.56	17.16	0.43
	Aug-23		90.17	32.21	18.23	13.58	0.19
	Sep-23		70.12	29.37	5.38	16.98	0.18

 # TABLE-7 SHOWING AAQ MONITORING REPORT FOR THE REPORTING PERIOD.

TABLE-8

Surface Water Flow Rate in CUM/SEC				
SL. No	**Monitoring Station**	**Jul-23**	**Aug-23**	**Sep-23**
1	Baitarani river	32	24	22
2	Dalko Nallah	21	19	16
3	Jalpa Nallah	22	18	18
4	Kashi Nallah	18	16	11
5	Unchabali Nallah	16	20	10
6	Dalki Nallah	15	12	12
7	Ghairajal Nallah	14	17	7.0

 # TABLE-8 SHOWS THE SURFACE WATER FLOW RATE FOR THE REPORTING PERIOD

Combined Six Monthly Compliance Status of Environmental Clearance Conditions – "Unchabali Iron and Manganese Ore Mines & Iron ore Beneficiation Plant of M/s Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Orissa.

Table-09

Monitoring Station	ALL	Description	GWL (BGL in M)					
			Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
Inside ML area	510	Bore Well	12.0	10.0	6.0	3.0	6.0	5.8
Unchabali	504	Open Well	8.0	9.0	4.8	2.6	4.6	4.8
Kalimatti	550	Open Well	11.0	10.0	6.2	2.8	6.2	6.2
Balda	568	Open Well	9.8	9.8	5.6	3.1	5.1	5.0
Malda	507	Bore Well	12.0	10.2	5.4	2.4	4.8	4.6
Nayagarh	504	Open Well	9.0	7.0	5.4	2.8	5.2	5.0

#TABLE NO. 09 SHOWING GROUND WATER LEVEL MONITORING DATA

TABLE - 10

SL. NO	DESCRIPTION	Unit	Norms	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
1	pH	-	6.5-9.0	7.69	7.84	6.72	7.53	7.43	8.03
2	Total Suspended Solids (TSS)	Mg/l	100	57	47	28	38	32	18.8
3	(BOD)	Mg/l	30	11.6	8.1	8.6	7.8	9.8	8.4
4	Fecal Coliform	MPN/100 ml	<1000	27	29	23	12	14	11
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.									

#TABLE NO.10 SHOWING SEWAGE WATER TREATMENT PLANT WATER DISCHARGE REPORT

Combined Six Monthly Compliance Status of Environmental Clearance Conditions – "Unchabali Iron and Manganese Ore Mines & Iron ore Beneficiation Plant of M/s Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Orissa.

TABLE – 11

SL .NO	DESCRIPTION	Unit	Norms	Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
1	pH	-	6.5-8.5	7.99	7.52	7.02	7.08	7.93	7.75
2	Total Suspended Solids (TSS)	Mg/l	50	14	29	12	34	23	22.6
3	Oil & Grease	Mg/l	10	0.76	1.6	1.1	1.4	1.06	1.45
4	COD	Mg/l	150	39	49	49	47	34	24
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL									

#TABLE NO.11 SHOWING EFFLUENT WATER TREATMENT PLANT WATER DISCHARGE REPORT

TABLE – 12

FUGITIVE EMISSION DUST MONITORING REPORT

Periods		MONITORING LOCATIONS					
		CRUSHER PLANT	Ore Storage and loading	HAUL ROAD	SCREEN PLANT	MINES FACE	DUMP AREA
		Results, micro.gm/CUM					
Apr-23	AVG	583	513	519	402	475	394
May-23	AVG	589	518	524	406	480	398
June-23	AVG	489	430	435	337	399	331
Jul-23	AVG	281	239	256	194	229	190
Aug-23	AVG	372	331	338	294	303	288
Sep-23	AVG	452	402	411	357	368	350
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.							

 # TABLE NO.-12 SHOWING FUGITIVE EMISSION MONITORING REPORT

TABLE – 13

Sl. No.	Locations	NOISE LEVEL, Leq. In dB (A) from the data log of the monitor.					
		Apr-23	May-23	June-23	July-23	Aug-23	Sep-23
Work Zone Noise Report							
1	MINES PIT	56.9	56.7	58.9	57.3	48.7	56.5
2	LOADING POINT	73.4	71.2	73.3	77.2	47.0	77.3
3	OPERATOR CABIN	61.9	63.0	62.5	61.2	47.0	60.1
4	WORK SHOP	61.7	63.1	62.3	64.4	51.3	66.3
5	SCREEN PLANT	74.9	76.4	77.8	77.4	49.7	77.8
Ambient Noise Report							
1	BALDA	41.0	44.6	43.8	47.2	46.1	49.6
2	MALDA	44.8	43.3	41.1	42.9	46.4	48.6
3	NAYAGARH	48.5	53.5	51.5	48.5	48.9	53.1
4	UNCHABALI	39.0	42.5	46.6	47.5	46.2	49.2
5	OFFICE AREA	48.5	40.9	42.6	45.1	46.1	47.9
6	CAMP AREA	44.5	44.8	46.6	46.5	48.4	47.0
Norms		Residential. Leq: Day Time : 55 dB (A), Night Time : 45 dB (A)					
		Industrial, Leq: Day Time : 75 dB (A), Night Time : 70 dB (A)					
		Work-zone during 8 Hr exposure: 85 dB (A) – Leq.					

 # TABLE NO.-13 SHOWING NOISE MONITORING REPORT

TABLE – 14

Sl. No	DESCRIPTION	2020-21	2021-22	202-2023
Environmental Monitoring Parameter Testing charges				
1	AAQ, Ground Water, Surface Water, STP, ETP, Soil Test, Fugitive Test, etc.	45.96	43.40	41.20
Dump Stabilization & Plantation				
2	Retaining wall, garland drain & its maintenance	29.20	10.50	10.50
3	Plantation, dump stabilization by coir matting	19.0	5.35	8.00
Dust Suppression				
4	Mobile Sprinkler	15.00	37.00	36.00
5	Fixed Sprinkler	14.30	2.50	1.50
6	Dry fog	1.27	1.15	1.0
Environmental Instruments and its maintenance & calibration				
7	RDS, Noise Meter, PPV Instruments, etc.	2.0	1.25	1.50
8	ETP and its maintenance	1.20	1.50	1.50
9	STP and its maintenance	1.20	3.95	1.20
Miscellaneous Expenses				
10	Rainwater harvesting and its maintenance	0.50	0.50	0.70
11	Occupational Health & Hygiene monitoring	4.0	5.20	4.20
12	Others (Including Nallah Protection measures)	2.95	2.90	1.90
Total		**136.58**	**115.20**	**109.20**

Combined Six Monthly Compliance Status of Environmental Clearance Conditions – "Unchabali Iron and Manganese Ore Mines & Iron ore Beneficiation Plant of M/s Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Orissa.

TABLE - 15

Sl. No.	PERIOD	DATE OF SUBMISSION
1.	October -2022 to March-2023	01.06.2023
2.	April-2022 to September-2022	30.11.2022
3.	October -2021 to March-2022	31.05.2022
4.	April-2021 to September-2021	25.11.2021
5.	October -2020 to March-2021	29.05.2021
6.	April-2020 to September-2020	18.11.2020
7.	October -2019 to March-2020	29.05.2020
8.	April-2019 to September-2019	28.11.2019
9.	October – 2019 to March – 2019	27.05.2019
10.	April – 2018 to Sept – 2018	01.12.2018
11.	October -2017 to March-2018	28.06.2018
12.	April-2017 to September-2017	04.12.2017
13.	October -2016 to March-2017	09.06.2017
14.	April-2016 to September-2016	25.11.2016
15.	October-2015 to March-2016	12.05.2016
16.	April-2015 to September -2015	25.11.2015

#TABLE NO.-15 SHOWING EC COMPLIANCE SUBMISSION DETAILS

ANNEXURE - 1

INDRANI PATNAIK

(MINES OWNER)

A/6, COMMERCIAL ESTATE, CIVIL TOWNSHIP, ROURKELA - 769 004
Phone : 0661-2400139, 2400014, FAX : 0661-2402226

REFERENCE: UIMM/IP/ENV/APR 23/03 **DATE:** 22.04.2023

To
The Member Secretary,
State Pollution Control Board, Odisha,
118/A, Nilakanthanagar, Unit – VIII,
Bhubaneswar – 751012

Subject : Submission of compliance Report under Consent to operate order for Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

Reference : Approved Consent order No. 2645 vide letter no 4999 / IND-I-CON-6035 dated on 29.03.2022

Dear Sir,

With reference to the above mentioned subject, we are here with submitting the compliances report to the condition stipulated under the above consent order for the period of **April 2022 to March 2023** in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

This is for your kind information, please

For **Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik**

22/4/23

Mines Manger

Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik
Malapada, Keonjhar

Encl : As above
Copy To : The Regional Officer, SPCB, Orissa, Regional Office, Collage Road, Dist : Keonjhar, Odisha.

Annexure - 2

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
EASTERN REGIONAL OFFICE
A/3, CHANDRASEKHARPUR, BHUBANESWAR - 751 023
TEL. : (Off.) 2301213, 2302432, 2302443, 2302452, 2302453
FAX : 0674-2302432. GRAM : PARYAVARAN, BHUBANESWAR
Email : mef@ori.nic.in

भारत सरकार
पर्यावरण एवं वन मंत्रालय,
पूर्वी क्षेत्रीय कार्यालय
ए/3, चन्द्रशेखरपुर, भुवनेश्वर -751 023
तार - पर्यावरण, भुवनेश्वर

8(21)40/2004-FCE

May 3, 2007

To

The Principal Secretary,
Forest & Environment Department,
Govt. of Orissa,
Bhubaneswar.

Sub:- Diversion of 35.275 ha of forest land in village Unchabali in Keonjhar district for Iron Ore Mining by Smt. Indrani Patnaik of Keonjhar.

I am directed to refer to your letter No. 10F(Cons)78/2004.5763/F&E dated 13.04.2007 on the above mentioned subject seeking prior approval of the Central Govt. in accordance with Section-2 of the Forest(Conservation) Act, 1980.

After careful consideration of the proposal of the State Government, the Central Government hereby conveys its approval under Section-2 of the Forest(Conservation) Act, 1980 for diversion of 35.275 ha (34.675 ha for mining and 0.6 ha for road) of forest land in village Unchabali in Keonjhar district for Iron Ore Mining by Smt. Indrani Patnaik of Keonjhar, subject to the compliance of the following conditions:-

i) Legal status of the forest land diverted shall remain unchanged.

ii) Compensatory afforestation shall be raised and maintained over 35.275 ha of non-forest land made available in village Guptaganga under Telkoi Tahasil mutated in favour of State Forest Department and handed over to Forest Department at the project cost and the non-forest land shall be declared as PF/RF. The Nodal Officer will submit a report regarding the above issue within 6 months.

iii) An undertaking from the user agency shall also be obtained to the effect that in case the rates of NPV are revised upwards, the additional/differential amount shall be paid by the User Agency.

iv) The State Government shall deposit Net Present Value of Rs. 2,64,56,250.00, Compensatory Afforestation of Rs. 5,77,000.00, Safety Zone of Rs. 1,39,300.00, Afforestation of Safety Zone of Rs. 2,21,600.00, Wildlife Management Plan Scheme of Rs. 15,91,691.00, Site Specific Wildlife Management Scheme of Rs. 21,75,000.00 and cost of protection, conservation & enrichment of 64.332 ha of balance forest area not proposed for diversion with the Ad-hoc Body of Compensatory Afforestation Fund Management and Planning Authority(CAMPA), in Account No. CA 1585 of Corporation Bank (A Government of India Enterprises), Block-11, Ground Floor, CGO Complex, Phase-1, Lodhi Road, New Delhi – 110 003, as per the instruction communicated vide letter No. 5-2/2006-FC dated 20.05.2006.

v) RCC pillars of 4 feet height shall be erected to demarcate the broken up area by the user agency at the project cost and will be marked with forward and back bearing and a site map be prepared showing the positions of all the boundary pillars with G.P.S. reading for periodic monitoring by the [illegible]

vi) The 35.275ha forest land proposed for diversion shall be used for mining (34.675 ha) and road(0.600 ha) only. No overburden dumping or any other ancillary activity will be undertaken thereat.

vii) Mining shall be done strictly as per the mining plan approved by the IBM and copy of revised Mining Plan(s) for subsequent five year periods shall be furnished to the Regional Office without fail.

viii) The period of permission granted Under the Forest(Conservation) Act, 1980 shall be co-terminus with the period of current mining lease granted under MMRD Act or 20 years whichever is earlier.

ix) Reclamation of mined out area as well as Over Burden dumps will be done as per a reclamation plan prepared in this regard. Progress of reclamation will be periodically monitored by the State Forest Department. Serious lapse in achieving reclamation targets shall invite severe action leading to even closure of mine.

x) The Forest Department shall carry out regeneration, maintenance of safety zone area at the funds provided by the User agency.

xi) The Forest Department shall carry out afforestation over degraded forest land equivalent one and half times of the safety zone with the funds provided by the User Agency.

xii) The Regional Wildlife Management Plan prepared for Bonai-Keonjhar belt shall be implemented with the funds provided by the User Agency. The specific Wildlife Management Plan, if any, approved by the Chief Wildlife Warden, shall also be implemented at project cost with the additional funds realized from the User Agency.

xiii) Blasting, if required to be undertaken, shall be done in a manner causing least disturbance to wild animals particularly elephants. The timing of blasting should be kept flexible during seasonal movement of elephants or during period of their migration or if they happen to be around otherwise in consultation with the D.F.O.

xiv) The Scheme prepared by the Forest Department for protection, conservation and enrichment of the vegetative cover over balance 64.332 ha forest land not proposed for diversion shall be implemented at project cost under supervision of the Forest Department.

xv) Standing trees over forest land proposed for diversion shall be felled in phases only on forest land needed to be broken strictly as per the Mining Plan with prior permission of the D.F.O.

xvi) The user agency shall ensure that no damage to the available wildlife or to the forest flora in the neighbouring forest is caused by labourers/workmen engaged by the project authorities or contractor working under them.

xvii) No labour camp shall be allowed in the forest area and Sufficient alternate fuel from the approved source shall be provided by the user agency or the contractors working under them to the labourers engaged in the project at project cost to ensure reduction of pressure on nearby forests.

xviii) The forest land shall not be used for any purpose other than that specified in the proposal.

xix) Adequate soil and water conservation measures, as and when required, shall be taken by the User Agency in consultation with Forest Officials to check any soil erosion in the lease hold area.

) All necessary measures should be taken by the user agency to protect environment.

xi) Any other conditions that the Central Government may impose from time to time in the interest of afforestation, conservation and management of flora and fauna in the area shall be complied by the user agency.

xxii) In case of non-compliance of any of the above conditions, the concerned Divisional Forest officer shall report through the State Govt. to this office as per procedure laid down in the clause 1.9 of guidelines issued under Forest(Conservation) Act, 1980 on 25.10.1992.

The State Government shall ensure compliance of all the above conditions.

Yours faithfully,

(S. MOHAPATRA)
DY. CONSERVATOR OF FORESTS(CENTRAL)

y to:-

1. The Inspector General of Forests(FC), Ministry of Environment & Forests, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi – 110 003.
2. The Principal Chief Conservator of Forests, Govt. of Orissa, Aranya Bhawan, C.S.Pur, Bhubaneswar – 16.
3. The Nodal Officer, O/o the Principal Chief Conservator of Forests, Govt. of Orissa, Aranya Bhawan, C.S.Pur, Bhubaneswar – 16.
4. The Divisonal Forest Officer, Keonjhar Forest Divison, Keonjhar.
5. Smt. Indrani Patnaik, Mines Owner, Rourkela.
6. Guard File.

S Mohapatra
3/7/2007
DY. CONSERVATOR OF FORESTS(CENTRAL)

F. No. 8-67/2014-FC
Government of India
Ministry of Environment, Forests and Climate Change
(Forest Conservation Division)
****

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi –110003.
Dated: 11th September, 2015

To,

The Principal Secretary (Forests),
Government of Odisha.
Bhubaneswar.

Sub: Diversion of additional 68.157 hectares of forest land including 3.825 hecatres of forest land inside safety zone, in addition to 35.275 hectares of DLC forest land already diverted, within total Mining lease area of 106.1127 hectares in Unchabali Iron & Manganese ore mines of Smt Indrani Patnaik, in Keonjhar district, Odisha.

Sir.

I am directed to refer to the Government of Odisha's letter No 10 F (Cons.) 155/ 2014-14856/ F & E dated 11th August 2014 on the above mentioned subject, seeking prior approval of the Central Government under Section- 2 of the Forest (Conservation) Act, 1980. After careful examination of the proposal by the Forest Advisory Committee constituted by the Central Government under Section-3 of the said Act, 'in-principle' approval to the proposal was granted by the Ministry vide its letter of even number dated 30th December, 2014 subject to fulfillment of certain conditions prescribed therein. The State Government has furnished compliance report in respect of the conditions stipulated in the 'in-principle' approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government of Orissa vide their letter No. 10F (Cons)-37/2015/ 8276/ F & E, Bhubaneswar dated 18th May, 2015, final approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for additional 68.157 hectares of forest land including 3.825 hectares of forest land inside safety zone, in addition to 35.275 hectares of DLC forest land already diverted, within total Mining lease area of 106.1127 hectares in Unchabali Iron & Manganese ore mines of Smt. Indrani Patnaik, in Keonjhar district, Odisha, subject to the following conditions:

(i) Legal status of the diverted forest land shall remain unchanged;

(ii) Compensatory afforestation over the non-forest land, equal in extent to the forest land being diverted, shall be raised and maintained by the State Forest Department from funds already provided by the user agency;

(iii) The non-forest land transferred and mutated in favour of the State Forest Department shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act latest within a period of six months from the date of issue of Stage--II approval. The Nodal Officer shall report compliance in this regard along with a copy of the original

notification declaring the non-forest land under Section 4 or Section 29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act, as PF or RF, as the case may be, within the stipulated period to the Central Government for information and record;

(iv) Following activities, as per approved plan/schemes, shall be undertaken by the user agency under the supervision of the State Forest Department:

(a) Mitigative measures to minimize soil erosion and choking of streams shall be implemented in accordance with the approved Plan in consultation with the State Forest Department.

(b) Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved scheme;

(c) Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved scheme;

(d) Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that that angles of repose at any given place is less than 28^{0} ; and

(e) No damage shall be caused to the top-soil and the user agency will follow the top soil management plan.

(v) The User Agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;

(vi) The User agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;

(vii) The State Government shall seek approval of Central Government under the FC Act for diversion 0.469 ha of forest land reported to be forest *kissam* as on 25.10.1980 by the Tahasildar , Barbil out of the total non-forest land over 2.6827 ha treated as non-forest as per Hal RoR.

(viii) The User agency shall implement the provisions, as contained in the Regional Wildlife Management Plan in consultation with the Chief Wildlife Warden, Odisha from the funds already provided by the user agency for this purpose:

(ix) The User agency shall implement the provisions, as contained in the approved site specific Wildlife Conservation Plan in consultation with the Chief Wildlife Warden, Odisha from the funds already provided by the user agency for this purpose;

(x) User agency shall take appropriate measures such as construction of ponds, water conservation / harvesting structure *etc.* to ensure conservation of water in and around the project site;

(xi) The State Forest Department shall organize environmental awareness programme to generate awareness among the employees as well as local residents on issues pertaining to conservation and protection of environment from the funds already provided by the User agency;

(xii) The user agency shall abide by the provision shall take appropriate measures which will be suggested by the State Government based on the outcome of study, being conducted by the National Institute of Technology, Rourkela to assess impact of this project on floral and faunal biodiversity;

(xiii) Tree felling should be taken up in phases strictly as per requirement under the supervision of the Divisional Forest Officer, Keonjhar Forest Division;

(xiv) User agency shall execute the Phased Reclamation Plan at their cost; and

(xv) The user agency shall surrender mined out and biologically reclaimed forest area to the State Forest Department as per the schedule for surrendering of such land submitted by the State Government;

(xvi) Following activities shall be undertaken by the user agency for the management of safety zone:

(a) User agency shall ensure demarcation of boundary of safety zone (7.5 meter strip all along the outer boundary of the mining lease area), and its protection by erecting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deploying adequate number of watchers under the supervision of the State Forest Department.

(b) In case of the mining leases adjoining the habitation stretch of the boundary of the safety zone of the lease adjacent to the habitation/roads should be properly fenced by the user agency at the project cost to protect the vegetation /regeneration activities in the safety zone.

(c) Safety zone shall be maintained as green belt around the mining lease and to ensure dense canopy cover in the area, regeneration shall be taken in this area by the user agency at the project cost under the supervision of the State Forest Department.

(d) Afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the area under safety zone shall also be done by the user agency at the project cost under the supervision of the State Forest Department.

(xvii) Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended or Rules framed there under;

(xviii) User agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.4), if any, located in the area within 100 m. from outer perimeter of the mining lease;

(xix) User agency shall undertake de-silting of the village tanks and other water bodies located within five km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies, whenever required;

(xx) User agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, Government of

Odisha and the Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (Eastern Zone), Bhubaneswar. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Addl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed;

(xxi) No labour camp shall be established on the forest land;

(xxii) User agency shall provide firewood preferably alternate fuel to the labourers and the staff working at the site so as to avoid any damage and pressure on the adjacent forest areas;

(xxiii) The boundary of the mining lease and safety zone shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar;

(xxiv) Forest land shall not be used for any purpose other than that specified in the proposal;

(xxv) The user agency shall submit the annual self-compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly;

(xxvi) Any other condition that the Regional Office (Eastern Zone), Bhubaneswar of this Ministry and the Government of Odisha may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; and

(xxvii) The User Agency and the State Government shall ensure strict compliance of conditions of Stage-I approval for which undertakings has been obtained from the User Agency and also provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.

Yours faithfully,

(Nisheeth Saxena)
Assistant Inspector General of Forests

Copy to:

1. The Principal Chief Conservator of Forests, Government of Odisha, Bhubaneswar.
2. The Nodal Officer, the Forest (Conservation) Act, 1980 Forest Department, Government of Odisha, Bhubaneswar.
3. The Addl. Principal Chief Conservator of Forests (Central), Regional Office (Eastern Zone), Bhubaneswar.
4. User Agency.
5. Monitoring Cell, FC Division, MoEF & CC, New Delhi.
6. Guard File.

(Nisheeth Saxena)
Assistant Inspector General of Forests

No. J-11015/273/2009-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
C.G.O. Complex, Lodi Road,
New Delhi – 110 003

Dated the 31st May, 2011

To

M/s Indrani Patnaik
A/6 Commercial Estate,
Civil Township,
Rourkela-769 004

Subject: Unchabali Iron Ore Beneficiation Plant of Smt. Indrani Patnaik, located in Village Unchabali, Tehsil Barbil, District Keonjhar, Orissa -environmental clearance regarding.

Sir,

This has reference to your letter No. UIMM/BF/MOEF/EC/2010/10 dated 30.10.2010 and subsequent letters dated 31.12.2010 and 21.01.2011 on the subject mentioned above. The project was earlier prescribed Terms of Reference (TORs) by the Ministry of Environment and Forests on 16.11.2009 for undertaking detailed EIA study for the purpose of obtaining environmental clearance. The proposal is for setting up of a iron ore beneficiation plant with a capacity of 2.0million tonnes per annum (million TPA) throughput within the existing mining lease area. The Unchaballi Iron Ore and Manganese Ore Mining Project of M/s Indrani Patnaik located in Village(s) Unchaballi & Balda, Tehsil Champua, District Keonjhar, Orissa was accorded environmental clearance by the Ministry vide letter No. J-11015/214/2008-IA.II(M) dated 23rd July, 2009 for production capacity of 4million TPA of iron ore involving mining lease area 106.1127ha.

2. The proposed beneficiation plant will be located within the existing mine lease area for which environment clearance has already been obtained for a rated capacity of 4million TPA. Out of the total mine lease area of 106.1127ha (including 103.432ha of forestland); the land requirement for the beneficiation plant will be 2.35ha. Out of 2.35ha land requirement for beneficiation plant, an area of 1.05ha is kept for plant facilities, 1.1ha for water storage and 0.2ha for approach roads. The Baitarni River is flowing in the buffer zone of the project at a distance of 2.5km from the mine lease boundary. In addition, eight water bodies namely the Jalpa Nadi(1.5km), the Kasi Nallah(3.5km), the Dolko Nallah(7km), the Dalki Nallah(7.5km), the Ghagra Nallah and the Jagdhara Nadi(8km), the Gahirajala Nallah(8.5km) and the Mithida Spring(9km) are located in the buffer zone of the project.

..2/-

3. No national park/wildlife sanctuary/biosphere reserve/tiger reserve/elephant reserve etc. are reported to be located in the core and buffer zone of the project. The Conservator of Forests(Wildlife) approved site specific wildlife conservation plan for the mine on 15.02.2010.

4. The beneficiation plant will adopt wet process with the latest State of Art Technology comprising of drum scrubbers, double deck wet screens, jigs, dewatering and rinsing screens, thickening cyclones, high frequency screens, filter press etc. The throughput capacity of the beneficiation plant will be two million TPA. The life of the beneficiation plant is reported to be 10years only based on the mineral available from this mine and accordingly proponent have sought for clearance only for 10years. Selection of filter press eliminates the necessity of tailing pond and the final sludge comes in the form of cake. The project is based on zero discharge. The effluent generated will be recycled and reused and there will be no effluent discharge outside the plant area. The cake generated from the filter press will be dumped initially for two years along with the overburden as inter mixed layers and thereafter it will be filled back into the mined out area. The peak water requirement of the project is estimated as 1025m^3 per day, which will be obtained from the groundwater.

5. The public hearing of the project was held on 05.10.2010 for establishment of 2million TPA iron ore beneficiation plant within the mining lease hold area of Unchaballi Iron Ore and Manganese Ore Mining Project of M/s Indrani Patnaik located in Village(s) Unchaballi & Balda, Tehsil Champua, District Keonjhar, Orissa. The Ministry of Environment and Forests conveyed its approval under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 35.275 ha forestland (34.675ha for mining and 0.6ha for road) on 03.05.2007. The capital cost of the project is Rs.3000Lakhs and the capital cost for the environmental protection measures is proposed as Rs.320Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.25Lakhs. It has been stated that there is no court case to the project or related activity.

6. The Ministry of Environment and Forests has examined the application in accordance with the EIA Notification, 2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Unchabali Iron Ore Beneficiation Plant of Smt. Indrani Patnaik for an annual production capacity of Two(2)million tonnes throughput involving project area of 2.35ha, within the existing mining lease area of 106.1127ha of the applicant for a period of ten years only, subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

(i) No activity relating to the project shall be undertaken in the forestland for which forestry clearance under the Forest (Conservation) Act, 1980 has not been obtained. The environmental clearance is subject to grant of forestry clearance.

3/-

(ii) The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated therein.

(iii) The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water goes into the nearby rivers.

(iv) The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission.

(v) The cake generated from the filter press shall be dumped initially for two years along with the overburden as inter mixed layers and thereafter it shall be filled back into the mined out area. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.

(vi) Necessary safeguard measures shall be taken for effective control of particulate levels (PM_{10}) in the area. The safeguard measures shall be implemented within first three months and their effectiveness shown with supporting data of actual air quality monitoring.

(vii) A green belt of adequate width shall be developed all around the plant by planting the native species in consultation with the local DFO/Agriculture Department within first five years.

(viii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as 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 Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

(ix) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.

(x) Regular monitoring of ground water level and quality shall be carried out in and around the project area by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State

4/-

Ground Water Board/Central Ground Water Authority and the data thuscollected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubneswar, the Central Ground Water Authority and the Regional Director, Central Ground 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.

(xi) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water(surface water and groundwater) required for the project.

(xii) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.

(xiii) Appropriate mitigative measures shall be taken to prevent pollution of the Baitarni River in consultation with the State Pollution Control Board.

(xiv) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.

(xv) 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. Health records of the workers shall be maintained.

(xvi) Provision 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 STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

(xvii) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. All the safeguard measures brought out in the approved site specific wildlife conservation plan shall be effectively implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of approved conservation plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.

..5/-

B. General conditions

(i) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.

(ii) Atleast four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10micron i.e., PM_{10}) and 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.

(iii) Data on ambient air quality [(RSPM(Particulate matter with size less than 10micron i.e., PM_{10}) and NO_X] should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.

(iv) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

(v) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.

(vi) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

(vii) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

(viii) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

6/-

(ix) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.

(x) The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

(xi) The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

(xii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubneswar, the respective Zonal Office of Central Pollution Control Board and the 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. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.

(xiii) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

(xiv) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.

(xv) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubneswar by e-mail.

7/-

(xvi) 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 7 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 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 Bhubaneswar.

7. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

8. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

9. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made thereunder and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Orissa and any other Court of Law relating to the subject matter.

31/5/2011

(SATISH C. GARKOTI)
Scientist 'F'

Copy to:

(i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.

(ii) The Secretary, Department of Environment, Government of Orissa, Secretariat, Bhubaneswar.

(iii) The Secretary, Department of Mines and Geology, Government of Orissa, Secretariat, Bhubaneswar.

(iv) The Secretary, Department of Forests, Government of Orissa, Secretariat, Bhubaneswar.

(v) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.

..8/-

(vi) The Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharpur, Bhubaneshwar-751023.

(vii) The Chairman, Orissa State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneshwar-751012.

(viii) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.

(ix) The District Collector, District Keonjhar, Government of Orissa.

(x) EI Division, Ministry of Environment & Forests, EI Division, New Delhi.

(xi) Monitoring File.

(xii) Guard File.

(xiii) Record File.

31/5/2011

(SATISH C. GARKOTI)
Scientist 'F'

Annexure - 4A

INDRANI PATNAIK

(MINES OWNER)

A/6, COMMERCIAL ESTATE, CIVIL TOWNSHIP, ROURKELA - 769 004

Phone : 0661-2400139, 2400014, FAX : 0661-2402226

Ref.No. IP/mm/October 19/004 **Date: 03.10.2019**

The Member Secretary,
State Pollution Control Board,
Parivesh Bhawan, A/118,
Nilakantha Nagar, Unit – VIII,
Bhubaneswar – 751012.

Sub: Dismantling of 2.0 MTPA (2 x 185 TPH) Unchabali Iron Ore Beneficiation Plant of Smt. Indrani Patnaik, located in village in Unchabali, Tehsil Barbil, District Keonjhar, Orissa – Reg.

Ref: 1. Environment Clearance vide no. J-11015/273/2009-IA.II(M) dt. 31.05.2011
2. Consent to establish Order 12653/IND-II-NOC-5291 dt. 30.07.2011.
3. Consent Order no. 2645, vide no. 11731/IND-I-CON-6035 dt. 26.06.2013 & 2476/IND_I-CON-6035 dt. 06.02.2016

Dear Sir,

With reference to the cited subject and reference letter no., we would like to inform you that, we have established 2.0 Million TPA (2 x 185 TPH) Iron Ore Beneficiation Plant after obtaining the requisite statutory clearances say *Consent to Establish from your good office vide no. 12653/IND-II-NOC-5291 dt. 30.07.2011, Environment Clearance from MoEF&CC vid no. J-11015/273/2009-IA.II(M) dt. 31.05.2011 and Consent to Operate from your good office vide no. 11731/IND-I-CON-6035 dt. 26.06.2013. SPCB.* After due approvals, the iron ore beneficiation plant was in operation since 2013.

In due course of time and as per the approved review of mining plan duly approved by Indian Bureau of Mines, Govt. of India vide no. MS/FM/25-ORI/BHU/2017-18 dt. 16.11.2017; the total ROM will be handled by dry method of size separation with the help of Crusher and Screen Plants, so there will no requirement of wet beneficiation plant due to the following reasons;

> *"After detailed exploration, the resource has been estimated under G1 category. No additional resource has been established by drilling. The average grade of iron ore is coming around 62% Fe. Based on the estimation of the resource, it can be observed that, only 10% of total quantity is coming under sub-grade ore. Those sub-grade ore can easily be blendable with high grade ore. Hence, it is not worth to use the wet beneficiation plant as far as cost benefit analysis is concerned."*

Enj

In view of the above, we would like to inform you that; since there is no such requirement of the Beneficiation Plant, so we are in the process of dismantling of the 2.0 Million TPA (2 x 185 TPH) iron ore beneficiation plant located within our mines premises of Unchabali Iron & Mn Ore Mines.

This is for your kind information, please.

Yours faithfully,
Unchabali Iron Ore Beneficiation Plant
of Smt. Indrani Patnaik

Mines Manger

Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik
Mahaparvat

Enclosed: *Approved review of Mining Plan copy is attached.*

CC to: *The Director (S), Ministry of Environment, Forest & Climate Change, Eastern Regional Office, A/3, Chandrasekharpur, Bhubaneswar, Odisha - 751023*

भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES

ANNEXURE - 5

BY REGD PARCEL
Phone: 0674-2352463
TeleFax: 0674-2352490
E-mail: ro.bhubaneshwar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. MS/FM/25-ORI/BHU/2017-18 Date: 16.11.2017

To

Smt. Indrani Patnaik, Mine Owner,
Village- Unchabali, PO-Bamebari,
Barbil, Dist- Keonjhar,
Odisha-758034

Sub: Approval of Review of Mining Plan of Unchabali Iron & Mn Mine along with Progressive Mine Closure Plan (PMCP), over an area of 106.1127 ha in Keonjhar district of Odisha State, submitted by Smt. Indrani Patnaik under Rule 17 of Mineral Concession Rules, 2016.

Ref: - i) Your letter No. Nil dated 04.10.2017.
ii) This office letter of even no. dated 04.10.2017.
iii) This office letter of even no. dated 04.10.2017 addressed to Director of Mines, Government of Odisha copy endorsed to you.
iv) This office letter of even no. dated 23.10.2017.
v) Your Qualified Person letter No. PMP/IBM/05/2017-18 dated 08.11.2017.

Sir,

In exercise of the power delegated to me vide Gazette Notification No. S.O. 1857(E) dated 18.05.2016, I hereby **Approve** the Review of Mining Plan including Progressive Mine Closure Plan of Unchabali Iron & Mn Mine over an area of 106.1127 ha of Smt. Indrani Patnaik in Keonjhar district of Odisha State submitted under Rule 17 of Mineral Concession Rules, 2016. This approval is subject to the following conditions:

I. The Review of Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.

II. The proposals shown on the plates and/or given in the document is based on the lease map /sketch submitted by the applicant/ lessee and is applicable from the date of approval.

III. It is clarified that the approval of aforesaid Review of Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.

IV. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the applicant / lessee.

V. At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

VI. If this approval conflicts with any other law or court order/ Direction under any statute, it shall be revoked immediately.

VII. Validity of this document shall expire on 31.03.2023.

VIII. Next Financial Assurance shall be due for submission on 31.03.2023.

भवदीय / yours faithfully,

Encl: - One copy of approved
Review of Mining Plan

16/11/17

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information to:-

1. The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, Bhubaneswar– 751001, Odisha along with one copy of Review of Mining Plan by **REGISTERED PARCEL**.
2. Shri Pradeept Mohapatra, Post Box No. 1, P.o- Joda, At – Unchabali, Bamebari, Dist – Keonjhar, Odisha – 758034.

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Existing Dumps

Name of the Dump	Location	Length (Max) (m)	Breadth (Max) (m)	Area occupied (m^2)	Area occupied (ha)	Grade
1	E 336850 – 337115 N 2419290 –2419725	440	140	61600	6.16	-45% Fe.
2	E 336920 – 337110 N 2419930 - 2420050	170	90	15300	1.53	-45% Fe.

Existing Sub-grade Ore Stacks

Sl. No	Name of the Stack	Location	Area in Ha.	Quantity (t)
1	Sub Grade No. - 1	Near ML Pillar C1 337495 – 2419155 337295 - 2419000	3.09	540018.67

Existing stock as on 01.09.2017

Sl no	Size	Grade	Quantity (MT)
1	Lumps (10-30mm)	62-65%Fe	33077.909
2	Lump (5-18mm)	62-65%Fe	40171.673
3	Fines (0-10mm)	62-65%Fe	419528.65
4	Fines (0-10mm)	60-62%Fe	4374.669

(a - 2) Proposed Method of Mining:

Fully Mechanized method shall be adopted for production of iron ore. The existing benches shall be extended outside the broken up area as the forest clearance over total area has been granted. After getting tree felling order, the forest growth shall be cleared for advancement of benches and access of road to the benches. Advancement of the upper bench shall be done to permit development of adequate working width at lower bench. Based on the exploration result, the ore body has been earmarked in the geological plan. Considering the ore body configuration it has been planned to extend the existing benches laterally as well as depth ward. The benches shall be developed in a systematic manner with 10m height and 15m width. It has been planned to produce 4.00mt of ROM per annum. The ROM constitutes saleable ore and sub-grade ore. Production planning has been made for 5 years from 2018-19 to 2022-23.

Dismantling of Beneficiation plant

Only dry method of size separation will be adopted for processing of ROM. The existing wet beneficiation plant will not be utilized because of the following reasons:

- After detail exploration the resource has been estimated under G1 category. No additional resource has been established by the drilling. The average grade of iron ore is coming

around 62% Fe. Based on the estimation of resource, it can be observed that only 10% of total quantity is coming under sub-grade ore. This sub-grade ore can easily be blendable with high grade ore. Hence, it is not worth to use the beneficiation plant as far as cost benefit analysis is concerned.

- The bench movement towards east cannot be possible during next scheme period due to the existence of beneficiation plant. To make the benches systematic towards depth lateral development is required.

Hence, it is proposed to dismantle the beneficiation plant from 2016-17 onwards

Haul Road:

The layout of roads for haulage of ore/ waste and access to different installation in the mine will be developed complying with the statutory regulations stipulated in the Metalliferrous Mines Regulations, 1961. Overburden and sub-grade ore will be dispatched to the dumping and sub-grade stacking sites located in the lease area. It is proposed to maintain two 30m wide haul road in the eastern part of the quarry to keep the overall slope of the quarry below 45^0. Besides these two 30m benches, it is proposed to maintain fifteen meter wide haul road in the lease area as per need at a gradient up to 1:14. Regular maintenance of haul road will be done throughout the mine life to protect the road from damage and vehicles from wear & tear.

Site Services:

As far as day to day mine operation is concerned, the infrastructure such as site office, weigh bridge, rest shed, First-aid centre, blasting shed security house, magazine, guard house etc are already made available in the lease area.

Machineries to be deployed.

The mine will be operated in a three shift basis as per the existing practice. Process of excavation and loading of overburden/waste will be done by deploying hydraulic excavators and dumpers. Excavators of 2.1m^3 to 4.3m^3 capacities will be deployed for excavation & loading of ROM ore and dumpers of 30t to 85t capacity shall be deployed for transportation of ore and OB. Hard iron ore will be loosened through drilling & blasting. For the purpose, DTH drill like DP1100 of 115mm dia, etc. will be used during ensuing scheme

GLOBAL TECH ENVIRO EXPERTS PVT. LTD.
(FORMERLY GLOBAL EXPERTS)
An ISO-9001:2008 Certified Company

C-23, BJB Nagar,
Bhubaneswar-751014
Ph.: 0674-2436853
Fax:- 0674-2433487
E-mail- globalexperts@rediffmail.com
global1experts@gmail.com
visit us: www.globaltechenvexpt.com

GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC1010123000000161P**
Report No.	:	**GTEEPL/09/23/SW/161A** Issue Date: 07.10.2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	12.09.2023 Date of Receiving: 13.09.2023
Date of Testing	:	13.09.2023 to 19.09.2023
Sampling Location	:	**Baitarani River Up Stream**
Identification of Sample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	7.24
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	112
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	81
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	4
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	10
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.5
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	<2.0
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	25
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	42
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	.....	11.62
13	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	3.16
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	14.0
15	Sulphate as SO4	mg/l	IS 3025 (Part 24/Sec 1) : 2022	400(max)	12.8
16	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.29
17	Nitrate as NO3	mg/l	APHA 23rd Ed(4500-NO_3-B): 2017	50(max)	7.68
18	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.1
19	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.48
20	Hexavalent Chromium (Cr^{+6})	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
21	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	40
22	Amm.Nitrogen as (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.1

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global1experts@gmail.com
visit us: www.globaltechenvexpt.com

Report No: GTEEPL/09/23/SW/161A

23	Total Chromium	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01
24	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	.....	<0.05
26	Dissolved Phosphate as(P)	mg/l	APHA 23rd Ed (4500 P- D)2017	.....	0.11
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.02
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	.....	<0.05
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.12
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	.....	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1.0(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	389

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

N.B.:
1. The results relate to the sample received in respect to the Parameters tested.
2. Liability for return of sample ceases after 15 days from the date of Test certificate.
3. The report cannot be reproduced either in full or in part, without prior written consent of Director.
4. In case of any complaint, Please mail us globalexperts@rediffmail.com

GLOBAL TECH ENVIRO EXPERTS PVT. LTD. BHUBANESWAR C-23,BJB NAGAR

-END OF REPORT-

GLOBAL TECH ENVIRO EXPERTS PVT. LTD.
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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO : **TC1010123000000161P**
Report No. : **GTEEPL/09/23/SW/161B** Issue Date: 07.10.2023
Name of the Client : **UNCHABALI IRON & MANGANESE MINES**
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 12.09.2023 Date of Receiving: 13.09.2023
Date of Testing : 13.09.2023 to 19.09.2023
Sampling Location : **Baitarani River Down Stream**
Identification of Sample : **Surface Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025 (Part-11)1983 RA 2017	6.5 to 8.5	6.93
2	Odour	....	IS 3025 (Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025 (Part 4) 2021	300	10
4	Specific Conductivity	µs/cm	IS 3025 (Part-14) :2021	.....	127
5	Total Dissolved solids	mg/l	IS 3025 (Part-16)1984 RA 2017	1500 (max)	91
6	Total Suspended Solids	mg/l	IS 3025 (Part-17):1984RA 2017	.....	6
7	Turbidity	NTU	IS 3025 (Part-10)1984 RA 2017	.....	14
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.1
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	2.0
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	30
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	48
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	.....	12.83
13	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	3.89
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	15.5
15	Sulphate as SO4	mg/l	IS 3025 (Part 24/Sec 1) : 2022	400(max)	17.2
16	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.22
17	Nitrate as NO3	mg/l	APHA23rdEd(4500-NO_3-B): 2017	50(max)	12.4
18	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.1
19	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.76
20	Hexa Chromium (Cr^{+6})	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
21	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	38
22	Amm.Nitrogen a (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.15

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Report No: GTEEPL/09/23/SW/161B

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	.....	<0.05
26	Dissolved Phosphate (P)	mg/l	APHA 23rd Ed (4500 P- D)2017	.....	0.15
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	.....	<0.1
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.14
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	.....	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	507

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC1010123000000161P**
Report No.	:	**GTEEPL/09/23/SW/161C** Issue Date: 07.10.2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate,Civil Township, Rourkela, Odisha
Date of Sampling	:	12.09.2023 Date of Receiving: 13.09.2023
Date of Testing	:	13.09.2023 to 19.09.2023
Sampling Location	:	**Unchabali Nallah Up Stream**
Identification of ample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	7.33
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	116
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	81
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	5
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	10
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.1
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	2.0
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	37
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	42
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	....	10.82
13	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	3.64
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	15.5
15	Sulphate as SO4	mg/l	IS 3025 (Part 24/Sec 1) : 2022	400(max)	12.34
16	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.21
17	Nitrate as NO3	mg/l	APHA 23r Ed(4500-NO_3-B):2017	50(max)	8.6
18	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.1
19	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.55
20	Hexavalent Chromium as Cr+6	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01
21	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	30
22	Amm. Nitrogen as (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.1

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Report No: GTEEPL/09/23/SW/161C

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05 (max)	<0.01
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23rdEd (4500 P- D) 2017	-----	0.20
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	<0.05
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.10
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	...	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	464

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd.

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO : **TC1010123000000161P**
Report No. : **GTEEPL/09/23/SW/161D** Issue Date: 07.10.2023
Name of the Client : **UNCHABALI IRON & MANGANESE MINES**
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 12.09.2023 Date of Receiving: 13.09.2023
Date of Testing : 13.09.2023 to 19.09.2023
Sampling Location : **Unchabali Nallah Down Stream**
Identification of Sample : **Surface Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.98
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	10
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	127
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	89
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	6
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	13
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	5.8
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	2.1
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	40
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	46
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	....	11.22
13	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	4.37
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	20.5
15	Sulphate as SO4	mg/l	IS 3025 (Part 24/Sec 1) : 2022	400(max)	23.4
16	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.37
17	Nitrate as NO3	mg/l	APHA 23r Ed(4500-NO_3-B):2017	50(max)	18.6
18	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.1
19	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.82
20	Hexavalent Chromium as Cr_{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01
21	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	28
22	Amm.Nitrogen (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.1

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Report No: GTEEPL/09/23/SW/161D

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05 (max)	<0.01
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23rdEd (4500 P- D) 2017	-----	0.24
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	<0.05
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.15
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	...	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	631

Authorised Signatory
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GTEEPL/LQR/56

TEST REPORT

NABL ULR NO	:	**TC1010123000000161P**
Report No.	:	**GTEEPL/09/23/SW/161E** Issue Date: 07-10-2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate,Civil Township, Rourkela, Odisha
Date of Sampling	:	12.09.2023 Date of Receiving: 13.09.2023
Date of Testing	:	13.09.2023 to 19.09.2023
Sampling Location	:	**Jalpa Nallah**
Identification of Sample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.82
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	121
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	83
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	8
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	17
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	5.5
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	2.2
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	38
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	52
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	....	12.83
13	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	4.86
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	18.0
15	Sulphate as SO4	mg/l	IS 3025 (Part 24/Sec 1) : 2022	400(max)	17.4
16	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.34
17	Nitrate as NO3	mg/l	APHA 23r Ed(4500-NO_3-B):2017	50(max)	7.52
18	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.1
19	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0..81
20	Hexavalent Chromium as Cr_{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01
21	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	32
22	Amm.Nitrogen as (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.15

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Report No: GTEEPL/09/23/SW/161E

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
24	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23RD Ed (4500 P- D) 2017	-----	0.26
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.02
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	0.08
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.23
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	----	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1.0(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	644

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd.

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC1010123000000161P**
Report No.	:	**GTEEPL/09/23/SW/161F** Issue Date: 07.10.2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	12.09.2023 Date of Receiving: 13.09.2023
Date of Testing	:	13.09.2023 to 19.09.2023
Sampling Location	:	**Kashi Nallah**
Identification of Sample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025 (Part-11)1983 RA 2017	6.5 to 8.5	7.04
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	108
5	Total Dissolved solids	mg/l	IS 3025 (Part-16)1984 RA 2017	1500 (max)	78
6	Total Suspended Solids	mg/l	IS 3025 (Part-17):1984RA 2017	.....	6
7	Turbidity	NTU	IS 3025 (Part-10)1984 RA 2017	.....	11
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.1
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	<2.0
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	24
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	47
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	.....	12.03
13	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	4.13
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	19.5
15	Sulphate as SO4	mg/l	IS 3025 (Part 24/Sec 1) : 2022	400(max)	30.2
16	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.36
17	Nitrate as NO3	mg/l	APHA 23rd Ed(4500-NO_3-B): 2017	50(max)	17.4
18	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.1
19	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.93
20	Hexa Chromium (Cr^{+6})	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
21	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	35
22	Amm.Nitrogen a (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.1

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Report No : GTEEPL/09/23/SW/161F

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max.)	<0.01
24	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23rd Ed (4500 P- D) 2017	-----	0.28
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	0.09
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.18
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	...	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	486

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd.

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC101012300000138P**
Report No.	:	**GTEEPL/08/23/GW/138L** Issue Date: 07.09.2023
Name of the Client	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.08.2023 Date of Receiving: 11.08.2023
Date of Testing	:	11.08.2023 to 17.08.2023
Sampling Location	:	**ML Area**
Identification of Sample	:	**Ground Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.53
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	.217
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	128
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	97
9	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	52
10	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	23.25
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	9.48
12	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	32.49
13	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	5.6
14	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.46
15	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	1.02
16	Total Ammonia	mg/l	IS 3025(Part-34)1988RA2019	0.5(max)	<0.01
17	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
18	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	1.0(max)	0.42
19	Total Chromium as Cr	mg/l	IS 3025(Part-52)2003 RA 2019	---	<0.02

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Report No: GTEEPL/03/23/GW/138L

20	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	------	27.2
21	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	------	4.2
22	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
23	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
24	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
25	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
26	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	0.08
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.15
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO	:	**TC101012300000000138P**
Report No.	:	**GTEEPL/08/23/GW/138M** Issue Date: 07.09.2023
Name of the Client	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.08.2023 Date of Receiving: 11.08.2023
Date of Testing	:	11.08.2023 to 17.08.2023
Sampling Location	:	**Unchabali Village**
Identification of Sample	:	**Ground Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012 RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.61
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	197
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	116
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	77
9	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	54
10	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	18.84
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	7.29
12	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	28
13	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	3.7
14	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.51
15	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	1.6
16	Total Ammonia	mg/l	IS 3025(Part-34)1988 RA 2019	0.5(max)	<0.01
17	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
18	Iron as Fe	mg/l	IS 3025(Part-53) 2003 RA 2019	1.0(max)	0.63
19	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.02

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Report No: GTEEPL/08/23/GW/138M

20	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	----	31.1
21	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	5.3
22	Total Chromium as Cr	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
23	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
24	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
25	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
26	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.1
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
30	Manganese	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	0.09
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.21
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	<2

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC101012300000013SP**
Report No.	:	**GTEEPL/08/23/GW/138N** Issue Date: 07.09.2023
Name of the Client	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.08.2023 Date of Receiving: 11.08.2023
Date of Testing	:	11.08.2023 to 17.08.2023
Sampling Location	:	**Balda Village**
Identification of Sample	:	**Ground Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.62
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	202
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	119
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	106
9	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	78
10	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	27.26
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	9.23
12	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	29.49
13	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	11.22
14	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.56
15	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	1.96
16	Total Ammonia	mg/l	IS 3025(Part-34)1988RA2019	0.5(max)	<0.01
17	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
18	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	1.0(max)	0.38
19	Total Chromium as Cr	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.02

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Report No: GTEEPL/08/23/GW/138N

20	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	28.4
21	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	4.8
22	Total Chromium as Cr	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
23	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
24	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
25	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
26	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	<0.05
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.12
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO : **TC101012300000013SP**
Report No. : **GTEEPL/08/23/GW/138O** Issue Date: 07.09.2023
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 10.08.2023 Date of Receiving: 11.08.2023
Date of Testing : 11.08.2023 to 17.08.2023
Sampling Location : **Nayagarh Village**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.73
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	266
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	156
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	128
9	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	88
10	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	30.07
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	12.88
12	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	39.49
13	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	8.8
14	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.69
15	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	2.1
16	Total Ammonia	mg/l	IS 3025(Part-34)1988RA2019	0.5(max)	<0.01
17	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
18	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	1.0(max)	0.87
19	Total Chromium as Cr	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.02

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E-mail- globalexperts@rediffmail.com
globaltexperts@gmail.com
visit us: www.globaltechenvexpt.com

Report No: GTEEPL/08/23/GW/1380

20	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	34.6
21	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	5.9
22	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
23	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
24	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
25	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
26	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
30	Manganese	mg/l	IS 3025(Part-34)1988 RA 2003	0.1(max)	0.08
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.24
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

N.B.:
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-END OF REPORT-

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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO	:	**TC101012300000013SP**
Report No.	:	**GTEEPL/08/23/GW/138P** Issue Date: 07.09.2023
Name of the Client	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(Smt. IndraniPattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.08.2023 Date of Receiving: 11.08.2023
Date of Testing	:	11.08.2023 to 17.08.2023
Sampling Location	:	**Kalimatti Village**
Identification of Sample	:	**Ground Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.52
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	209
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	117
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	111
9	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	66
10	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	27.66
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	10.21
12	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	34.5
13	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	4.9
14	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.56
15	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	1.72
16	Total Ammonia	mg/l	IS 3025(Part-34)1988RA2019	0.5(max)	<0.01
17	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
18	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	1.0(max)	0.66
19	Total Chromium as Cr	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.02

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Report No: GTEEPL/08/23/GW/138P

20	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	------	28.6
21	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	3.7
22	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
23	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
24	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
25	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
26	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	0.07
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.21
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/100 ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC101012300000000138P**
Report No.	:	**GTEEPL/08/23/GW/138Q** Issue Date: 07.09.2023
Name of the Client	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.08.2023 Date of Receiving: 11.08.2023
Date of Testing	:	11.08.2023 to 17.08.2023
Sampling Location	:	**Employee Camp**
Identification of Sample	:	**Ground Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.42
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	277
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	161
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	147
9	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	93
10	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	34.48
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	14.82
12	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	44.5
13	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	7.6
14	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.43
15	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	1.6
16	Total Ammonia	mg/l	IS 3025(Part-34)1988RA2019	0.5(max)	<0.01
17	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
18	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	1.0(max)	0.73
19	Total Chromium as Cr	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.02

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visit us: www.globaltechenvexpt.com

Report No: GTEEPL/08/23/GW/138Q

20	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	26.7
21	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	4.5
22	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
23	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
24	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
25	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
26	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.1
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	0.06
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.16
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

GLOBAL TECH ENVIRO EXPERTS PVT. LTD. BHUBANESWAR C-23,BJB NAGAR

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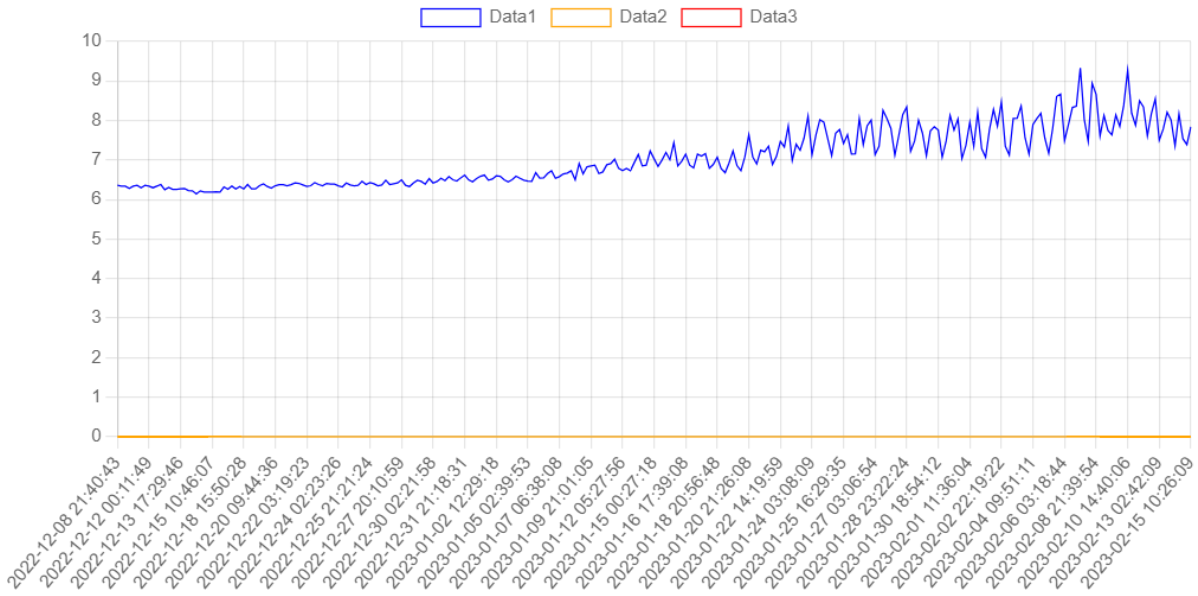
Annexure - 8

Pizeomter Grouda level data



Member Secretary

केन्द्रीय भूमि जल प्राधिकरण
जल संसाधन, नदी विकास एवं
गंगा संरक्षण मंत्रालय
भारत सरकार

Central Ground Water Authority
Ministry of Water Resources
River Development & Ganga Rejuvenation
Government of India

CGWA/IND/Proj/2017-246-R

No.21-4(88)/SER/CGWA /2008- 1903 Dated:- 16 NOV 2017

To,

M/s Unchabali Iron & Manganese Ore Mines
Smt. Indrani Patnaik
At- Unchabali, Block Joda,
District Keonjhar, Odisha - 758034

Sub:- Renewal of NOC for ground water withdrawal to M/s Unchabali Iron & Manganese Ore Mines of Smt. Indrani Patnaik located at Village Unchabali, Block Joda, Tehsil Barbil, District Keonjhar, Odisha - reg.

Refer to your application dated 29.04.2017 on the above cited subject. Based on recommendations of Regional Director, CGWB, South Eastern Region, Bhubaneswar vide their office letter No. 5-22/SER/CGWA/2017-18-856 dated 11.08.2017, and further deliberations on the subject, the renewal of NOC issued vide this office letter of even no. dated 09.05.2014 is hereby accorded to **M/s Unchabali Iron & Manganese Ore Mines of Smt. Indrani Patnaik located at Village Unchabali, Block Joda, Tehsil Barbil, District Keonjhar, Odisha.** The renewal is however subject to the following conditions:-

1. The firm may abstract **1,175 m3/day (not exceeding 4,28,875 m3/year)** of ground water through existing seven (7) bore wells only. No additional groundwater structures shall be constructed for this purpose without prior approval of the CGWA.
2. All the wells shall be fitted with water meter by the industry at its own cost and monitoring of ground water abstraction shall be continued on regular basis at least once in a month. The firm will continue to provide data of ground water extraction on regular basis to the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar. The ground water quality will be monitored twice in a year during pre monsoon and post monsoon periods.
3. **M/s Unchabali Iron & Manganese Ore Mines,** shall continue to implement ground water recharge measures to the tune of **6,36,676 m^3/year** for augmenting the ground water resources in consultation with the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar. Firm shall also undertake periodic maintenance of recharge structures at its own cost.
4. The firm shall continue to execute monthly ground water regime monitoring in and around the project area both in core and buffer zones through adequate

number of observation wells. The firm shall construct one (1) additional piezometer in consultation with Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar.

5. Both the piezometers shall be fitted with digital water level recorder and telemetry system.
6. The ground water monitoring data in respect of S. No. 2 & 5 shall be submitted to Central Ground Water Board, South Eastern Region, Bhubaneswar on regular basis at least once in a year.
7. The firm shall ensure proper recycling and reuse of waste water after adequate treatment.
8. Action taken report in respect of S.N o. 1 to 6 may be submitted to CGWA within one year period.
9. The renewal is liable to be cancelled in case of non-compliance of any of the conditions as mentioned in S. No. 1 to 7.
10. This NOC is subject to prevailing Central/State Government rules/laws or Court orders related to construction of tubewell/ground water withdrawal/construction of recharge or conservation structures/discharge of effluents or any such matter as applicable.
11. This NOC does not absolve the applicant / proponent of his obligation / requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
12. The NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and be taking decisions independently of the NOC.
13. This renewal is valid for five years from date of issuance of this letter.

Member Secretary

Copy to:

1. The Member Secretary, Odisha Pollution Control Board Paribesh Bhawan, A/118, Nilakantha Nagar,Unit - VIII, Bhubaneswar, Odisha **with the request to ensure that the conditions mentioned in the NOC are compiled by the firm in consultation with the Collector & District Magistrate, District Keonjhar, Odisha.**
2. The District Collector and District Magistrate, District Keonjhar, Odisha for necessary action.
3. The Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar. This has reference to your recommendation dated 11.08.2017.
4. TS to the Chairman, Central Ground Water Authority, Shram Shakti Bhawan, Rafi Marg, New Delhi.
5. Guard File 2017-18.

Member Secretary

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :
Government of Odisha

Date	:	**26/06/2023**
Time	:	**18:29:28 PM**
Validity upto	:	**25/12/2023**

OD09C3699

Certificate SL. No.	:	OR90100240001543
Registration No.	:	OD09C3699
Date of Registration	:	10/Apr/2014
Month & Year of Manufacturing	:	November-2013
Valid Mobile Number	:	******2060
Emission Norms	:	BHARAT STAGE III
Fuel	:	DIESEL
PUC Code	:	OR9010024
GSTIN	:	21ALHPR2026H1ZG
Fees	:	Rs.177.00 (GST to be paid extra as applicable)
MIL observation	:	No

Vehicle Photo with Registration plate
60 mm x 30 mm

Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.97

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to https://puc.parivahan.gov.in

Authorised Signature with stamp of PUC operator
60mm x 20 mm

Event Report

Date/Time	MicL at 13:30:15 Sep 09, 2023
Trigger Source	Geo: 0.510 mm/s, Mic: 3.99 pa.(L)
Range	Geo: 254 mm/s
Record Time	6.75 sec (Auto=3Sec) at 1024 sps
Job Number:	0205
Notes	
Location:	UNCHABALI IRON&MN. MINES
Client:	SMT.INDRANI PATNAIK
User Name:	
General:	

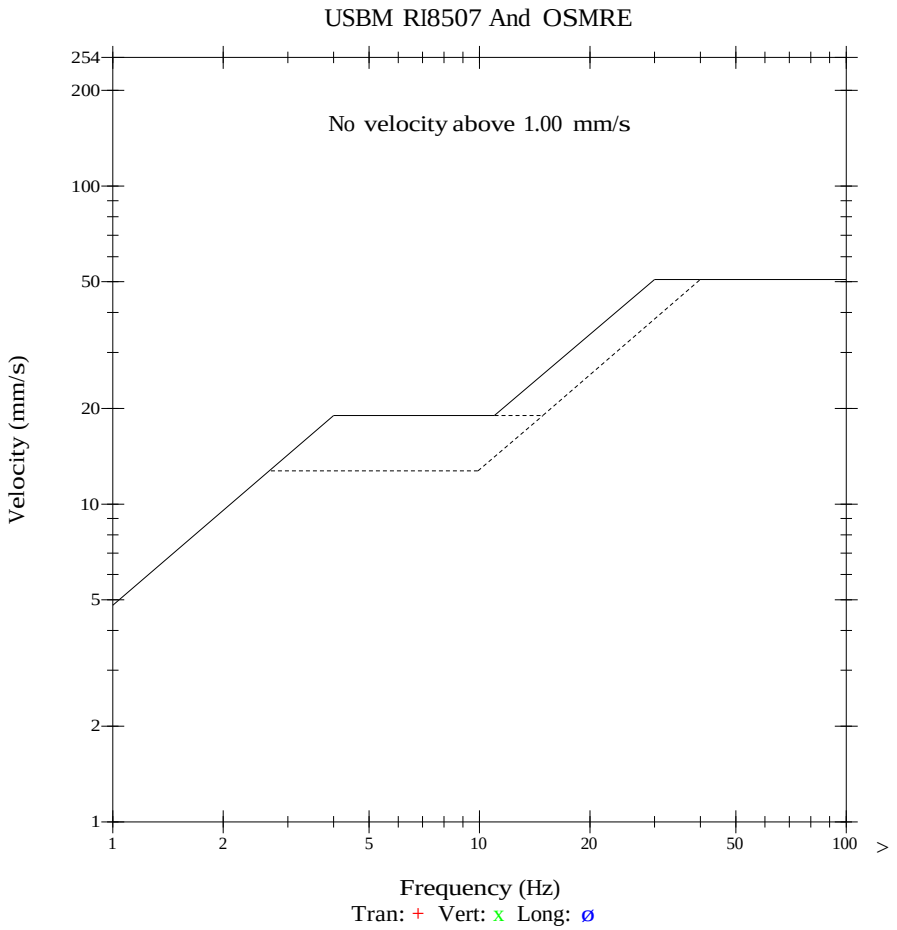
Serial Number	BE9928 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
File Name	K928IYN8.RG0
Scaled Distance	5.64 (300.0 m, 3000.0 kg)

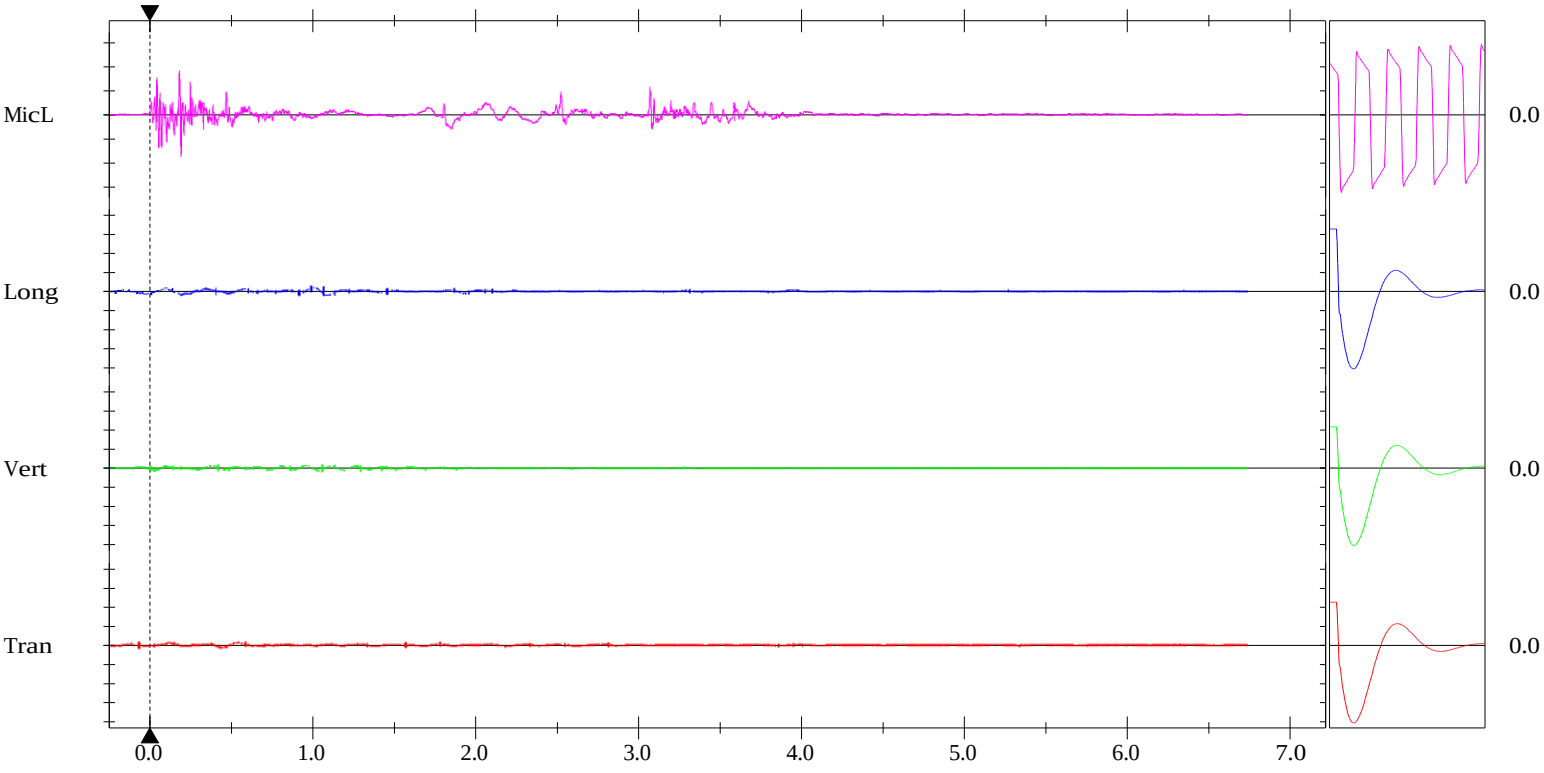
Extended Notes
BLASTING RL: 590
BURDEN: 3.0 M
SPACING: 3.5 M
NO.OF HOLES:199
DEPTH: 4.0 M
EXPLOSIVE: 3000 kg
BOOSTER: 30.70 Kg
VOLUME: 8358CUM
CHARGE FACTOR: 0.35 kg/cum

Microphone	Linear Weighting
PSPL ZC	18.5 pa.(L) at 0.174 sec
Freq Channel	47 Hz
Test	Passed (Freq = 20.5 Hz Amp = 473 mv)

	Tran	Vert	Long	
PPV	0.508	0.508	0.635	mm/s
ZC Freq	6.6	9.5	5.5	Hz
Time (Rel. to Trig)	0.425	0.016	0.178	sec
Peak Acceleration	0.0265	0.0265	0.0265	g
Peak Displacement	0.0132	0.0105	0.0163	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.6	Hz
Overswing Ratio	3.6	3.4	3.7	

Peak Vector Sum 0.684 mm/s at 0.178 sec





Time Scale: 0.50 sec/div Amplitude Scale: Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check
Trigger = ▶----------◀

OFFICE OF THE PRINCIPAL CCF (WILDLIFE) & CHIEF WILDLIFE WARDEN,ORISSA5TH FLOOR, B.D.A. APARTMENT, PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR- 751012.

Memo No. 1258 Dt. 15.2.2010
1WL-C-FC- 36/09

To

The Chief Conservator of Forests (Nodal),
O/o the Principal CCF, Orissa, Bhubaneswar.

Sub: Approval of Site Specific Wildlife Conservation Plan for Unchabali Iron & Manganese Mines of Smt. Indrani Patnaik in Keonjhar district

Sir,

I am directed to inform you that the Site Specific Wildlife Conservation Plan for Unchabali Iron & Manganese Mines of Smt. Indrani Patnaik in Keonjhar district has been approved by PCCF(WL) & Chief Wildlife Warden, Orissa with revised financial forecast of Rs.104.00 lakhs for the following activities.

3. For activities to be implemented by User agency---- Rs. 34.00 lakhs.
4. For activities to be implemented by DFO, Keonjhar Division ------ Rs.70.00 lakhs.

Total Rs. 104 lakhs

Various activities in the lease hold area will be executed by User Agency by themselves under the guidance of DFO, Keonjhar Division & Rs.70.00 lakhs may be deposited with DFO, Keonjhar division under CAMP for execution of various activities in Project Impact Area.

Conservator of Forests (WL)

Memo No. 1259 dt. 15.2.2010

Copy forwarded to the DFO, Keonjhar Division for information & necessary action with reference to Memo No. 3185 dt. 27.8.09 of CF., Rourakela Circle.

Conservator of Forests (WL)

Memo No. 1260 Dt. 15.2.2010

Copy forwarded to CF, Rourkela Circle for information & necessary action with reference to his office Memo No. 3184 dt.27.8.09

Conservator of Forests (WL)

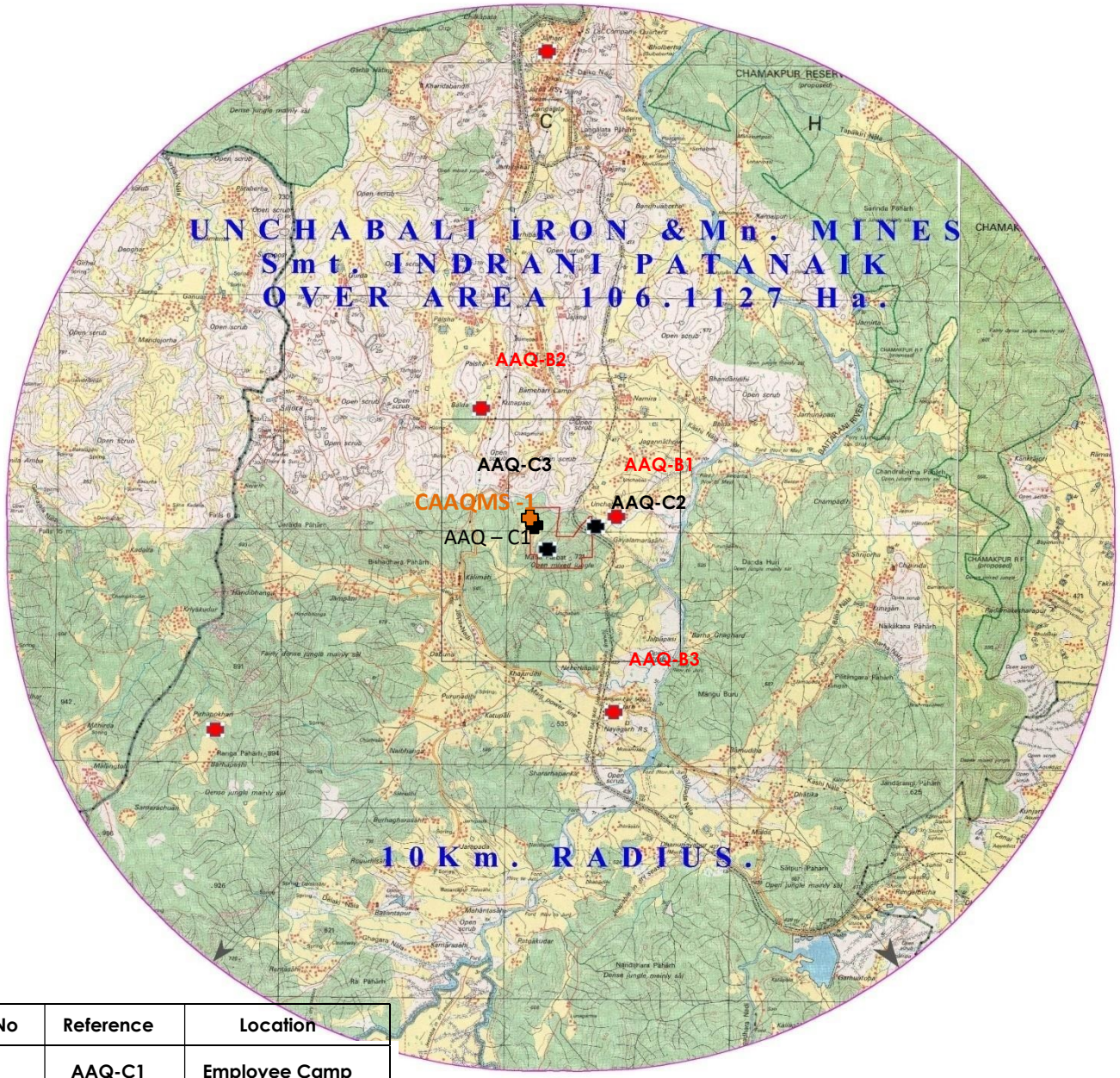
Memo No. 1261 dt. 15.2.2010.

Copy forwarded to the Smt. Indrani Patnaik, Mine Owner,A/6, Commercial Estate, Civl Township, Rourkela-769004 for information & necessary action with reference to his letter dated 22.9.09.

Enc: One NO. approved S.S.
WL Conservation Plan

Conservator of Forests (WL)

AAQ MONITORING STATION



SL. No	Reference	Location
1	AAQ-C1	Employee Camp
2	AAQ-C2	Mines Entry And Exit Gate
3	AAQ – C3	Beneficiation Plant
4	CAAQMS	Near magazine area

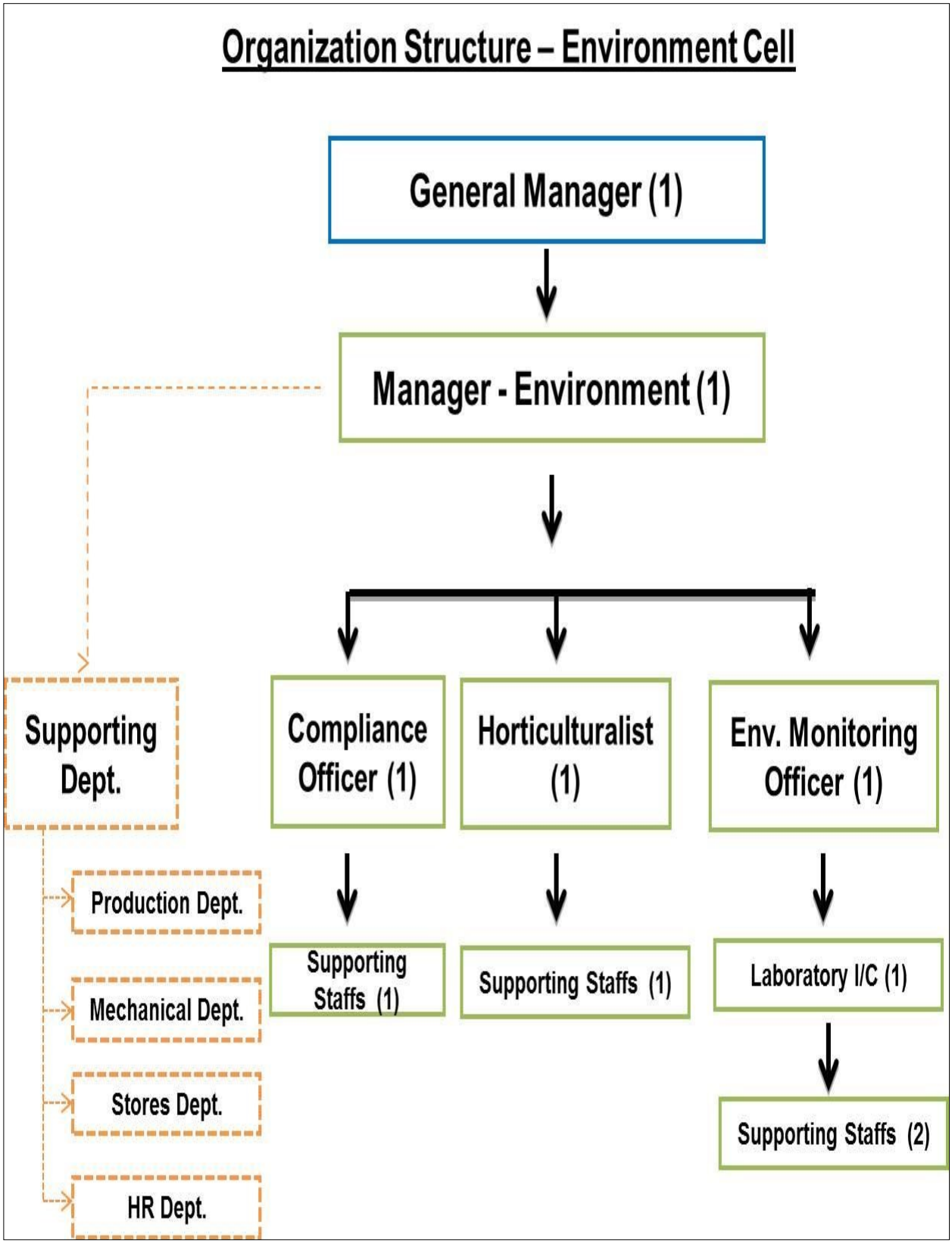
SL.No	Reference	Location
1	AAQ-B1	Village Unchabali
2	AAQ-B2	Village Balda
3	AAQ-B3	Village Nayagardh

AAQ MONITORING LOCATION

- CORE ZONE MONITORING LOCATIONS

- BUFFERZONE MONITORING LOCATION

- CONTINUOUS AMBIENT AIR MONITORING STAION CAAQMS


Organization Structure – Environment Cell
General Manager (1)
Manager - Environment (1)
Supporting Dept.
Compliance Officer (1)
Horticulturalist (1)
Env. Monitoring Officer (1)
Production Dept.
Mechanical Dept.
Stores Dept.
HR Dept.
Supporting Staffs (1)
Supporting Staffs (1)
Laboratory I/C (1)
Supporting Staffs (2)

INDRANI PATNAIK

(MINES OWNER)

A/6, COMMERCIAL ESTATE, CIVIL TOWNSHIP, ROURKELA - 769 004
Phone : 0661-2400139, 2400014, FAX : 0661-2402226

REFERENCE: UIMM/IP/ENV/APR 23/03 **DATE:** 22.04.2023

To
The Member Secretary,
State Pollution Control Board, Odisha,
118/A, Nilakanthanagar, Unit – VIII,
Bhubaneswar – 751012

Subject : Submission of compliance Report under Consent to operate order for Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

Reference : Approved Consent order No. 2645 vide letter no 4999 / IND-I-CON-6035 dated on 29.03.2022

Dear Sir,

With reference to the above mentioned subject, we are here with submitting the compliances report to the condition stipulated under the above consent order for the period of **April 2022 to March 2023** in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

This is for your kind information, please

For **Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik**

22/4/23

Mines Manger

Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik
Keonjhar

Encl : As above
Copy To : The Regional Officer, SPCB, Orissa, Regional Office, Collage Road, Dist : Keonjhar, Odisha.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

E. Special Conditions

Special Condition – 1:

This consent order is subject to compliance of orders of the Hon'ble Supreme Court of India in the matter of W. P. (Civil) 114/2014.

Compliance Status:

We abide by the said court orders.

Special Condition – 2:

This consent order is subject to permission from Steel and Mines Department, Government of Odisha for continuing mining operations.

Compliance Status:

The project is operating one and has obtained the permission from Steel & Mines Dept. Apart from that, the project is operating with approved review of Modification of mining plan vide Letter no.MCDR-MiFL0FE/20/2023-BBS-IBM-_RO_BBS Dated 30.03.2023 which is duly approved by Indian Bureau of Mines, GoI.

Special Condition – 3:

Mining operation is subject to availability of all other statutory clearances required under relevant Acts/Rules.

Compliance Status:

As per requirement, the project has been obtained all the clearances like mining plan, Environmental clearance, Forest Clearance etc. The copy of clearances are attached here as ANNEXURE-1, 2, 3.

Special Condition – 4:

Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.

Compliance Status:

Latest technology Excavator mounted drilling machine is being used for drilling operation, which is equipped with both water injection system and dust extractors system to minimize the dust generation in the work environment.

Photo Showing Excavate mounted Drilling Machine equipped with dust extractor & wet drilling mechanism

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 5:
Control blasting shall be practiced to minimize generation of dust and fly rocks.

Compliance Status:

The project has conducted a technical study by engaging "Central Institute of Mining and Fuel Research, Dhanbad" and based on the findings, we are following the control blasting procedures towards minimization of dust generation and fly rocks. The Control blasting is being practiced by use of proper blast design, optimum charge factor, proper burden and spacing and maintaining other relevant parameters as recommended by "CMFRI, Dhanbad". Each blasting is monitored by use of "Mini-mate" instrument asses the generated vibration and all the control blast parameters within in the limit. The latest monitoring report is enclosed as Annexure -4.

Special Condition – 6:
Regular water sprinkling shall be carried out in critical areas prone to air pollution such as around crushing and screening plant. Water sprinkling shall be carried out on haul roads at desired interval. Adequate sprinkling arrangement shall be made for control of fugitive dust emission. The haulage roads shall be devoid of ruts and potholes and shall be maintained properly to avoid the generation of dust during movement of vehicles.

Compliance status:

The project has implemented different type of dust suppression system to arrest the air pollution from the source level in and around the mines premises.

The detailed implementations are follows.

- ✓ **2500 M length of Fixed type water sprinklers are implemented in mines permanent haul roads and dispatch roads.**
- ✓ **Mines benches, temporary haul roads and other processing areas dust generation is suppressed by use of mobile water tankers. In this regard project has engaged three no. of 16 KL mobile water tanker, which is having inbuilt with high pressure hydraulic sprinkling system.**
- ✓ **Five numbers of 8 KL capacity mobile water tankers is being used for dust suppression in the Public roads, railway sidings approaching roads & railway yards.**
- ✓ **Portable type trolley mounted sprinkler has been placed in loading & unloading points to avoid the dust generations.**
- ✓ **Haulage roads are being maintained with grader and water sprinkling to avoid any sort of ruts and potholes.**

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Photos showing mobile water tankers encaged for dust suppression

Photos showing automatic fixed sprinkler installed at mines permanent Haul road

Photo showing motor grader under use for road maintenance

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 7:
Dust suppression measures preferably dry fog system shall be provided at the potential dust generation sources of mineral handling plants (Crusher, Screening plants). Loading and unloading areas including transfer points shall also have efficient dust suppression arrangements (Dry fog system). These shall be maintained and operated.

Compliance status:

The project has installed dry fog system in all mineral handling/processing plants (Crusher, Screening plants) to suppress the dust from source level.

In addition to dry fog system, the entire conveyor belt is hooded with GI sheets to avoid the dust generation or suppress the fly of dust from the plant process.

A photo showing dry fog implementations at varies plants.

Special Condition – 8:
Fixed auto sprinklers shall be provided on both sides of major haul road and Approach road of the mine.

Compliance status:

Project has installed 2.5 Km length of Fixed type water sprinklers in mines permanent haul roads and approach roads of mines towards dust suppression purposes.

Special Condition – 9:
Fixed water sprinkler shall be provided in the ore stockyard.

Compliance status:

Portable type trolley mounted sprinkler has been placed in stock yards to avoid the dust generations.

Special Condition – 10:
Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Compliance status:

The project has already installed the Mechanical wheel washing facility for the ore transport vehicle at the exit point of mines and it is integrated with complete recirculation system. The photo evidences of the same are given below.


Photo showing the Mechanical wheel washing system at mines exit gate

Special Condition – 11:

The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (Both bottom & top)

Compliance status:

The transporting vehicles are covered with tarpaulin to avoid the spillage of materials on mineral transporting road.


Photo showing transporting vehicles covered with tarpaulin

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 12:

Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National highway shall be done jointly by the mining lessees in consultation with the regional officer.

Compliance status:

Project has engaged two numbers of 8 KL water tankers for sprinkling on mineral transportation roads & other strategic point on the state express highway and KIDCO roads.

In addition to that, the project has developed proper bitumen road along with both side of NH with paved shoulder to minimize the dust generation on mineral transporting road & national highway.

Photo showing proper bitumen road constructed on mineral carrying Road

Photo showing 16 Kl water tanker engaged in Village road dust suppression

Special Condition – 13:

One continuous real time Ambient Air Quality Monitoring Stations shall be established in core zone with data transfer facility to SPCB server and location of these stations shall be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets in consultation with the Regional Officer, State Pollution Control Board.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Compliance status:

The project has already established One Continuous real time ambient air quality monitoring system (CAAQMS) in core zone with data transfer facility to SPCB RTDAS server by consulting the Regional Office, SPCB. The photograph of same is given below.

Photo showing the CAAQMS machine installed at mines

Special Condition – 14:

The CAAQMS shall be properly maintained and calibrated from time to time to ensure that spurious data are not transformed to the SPCB server.

Compliance status:

The CAAQMS is being maintained properly from time to time and calibration is also done, the last such calibration report is attached herewith as Annexure – 5.

Special Condition – 15:

Four Ambient Air Quality Monitoring stations shall be established in core zone and buffer zone for monitoring of Ambient Air Quality and location of the stations shall be decided in consultation with regional officer, state pollution control board bases on the meteorological data, topographical features and environmentally and ecologically sensitive targets.

Compliance status:

Based on metrological data & SPCB Regional Office guidelines, 6 nos. of AAQ monitoring stations have been placed in which 4 are in Core zone includes one CAAQMS and 2 are in Buffer Zones. The monitoring parameters are PM10, PM2.5, SO_2, NOx & CO. A map of the monitoring station is enclosed as Annexure –6.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 16:
Monitoring of Ambient Air quality shall be carried out twice in a week (24 hourly) at particular site and data shall be submitted to the state pollution control board, once in a year.

Compliance status:

As per recommendation, AAQ monitoring is being carried out on regular basis. The monitoring reports are being submitted the State pollution control board on yearly bases; the latest submission report is enclosed as Annexure – 7.

Special Condition – 17:
The Ambient Air Quality Parameters conform to the norms prescribed national ambient air quality standards.

Compliance status:

Ambient air quality parameters are very well within the prescribed norms as per prescribed national ambient air quality standards. The reporting period AAQ quality observation results are given in table- 01 and it's also confirmed that, all the test results are very well within the prescribed norms.

Special Condition –18:
Fugitive Dust Emission Monitoring shall be carried out at the places as stated in Part-B of this order. The monitoring of fugitive dust shall be carried out twice in a week (24 hourly) at a particular site and consolidated data shall be submitted to the State Pollution Control Board, once in a year.

Compliance status:

As per recommendation, Fugitive emission monitoring is being carried out on regular basis. The monitoring reports are being submitted to the State pollution control board on yearly basis; the latest submission is enclosed as Annexure – 7. The reporting period fugitive quality observation results are given in table- 02. It's also confirmed that, all the test results are very well within the prescribed norms.

Special Condition –19:
The top soil generated shall be stored at earmarked site (s) only and stabilized or shall be used for land reclamation and plantation.

Compliance status:

The present mining operation is restricted to already broken up area. So, there is no top soil generation during financial year 2022- 2023. However, earlier generation of top soil were consumed properly for plantation and gardening purposes.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 20:
The over burden generated during the course of mining shall be stacked at earmarked dump site (s) and should not be kept active for long period. Backfilling of OB shall be done in a phased manner. In critical areas, use of geotextile coverings shall be done followed by plantation for stabilization of the dump.

Compliance status:

As per approved mining plan and scheme, the generated of OB is being dumped in earmarked area within ML. As per the mining OB back filling is done in this year 2022-23 in line to approved Scheme of Mining and reclamation will be carried out accordingly.

Special Condition – 21:
The project proponent shall ensure that no natural water course and/or water recourses are obstructed due to any mining operations. In case of diversion of natural watercourse, this shall be done with prior permission of the competent authority.

Compliance status:

The mine operation is not obstructing any water course and /or water resources. In this regard project was engaged a technical consultant i.e. KRG Rainwater Harvesting Foundation for technical guidance and recommendation, to suggest for the same.

As per recommendation, the project has carried out / implemented various mitigative measures to ensure that the natural water courses and water bodies in and around the ML area. The project has implemented mitigative measures such as check dams, check weir, settling ponds and retaining wall and garland drainage etc. Hence, the project is practicing zero discharge runoff management during rainy season. The mines runoff water is being collected to the bottom pit of the mine by proper drainage patterns.

The collected water is being allowed for sedimentation into the bottom pit and after sedimentation process the final water is allowed for discharge through existing check dam and check weirs, if any, as there is natural percolation within the collection pit due to high pretending of water.

The detailed implementation of the check dam and check weirs are given in table - 3.

Special Condition – 22:
Check dams and check weirs shall be constructed at appropriate places of the mining lease area to prevent direct flow of runoff to nearby water bodies. The surface runoff water from runoff management system shall meet the prescribed standers.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Compliance status:

The project has constructed 10 number of check dams, check weirs in appropriate places to avoid the direct flow of runoff to the nearby water bodies. The location of the check dams and check weirs are made at the strategic locations i.e. in the valley and mines drainage area.

Hence, the final discharge water from the runoff management is regularly monitored during monsoon period and results are well within the prescribed Norms. The details of check dams and check weirs are given as Table No -3 and runoff water quality is given as Table – 4.

Special Condition – 23:

Retention wall shall be constructed at the Toe of topsoil dump and OB dump. Garland shall be constructed around the topsoil dump, over burden dumps and mineral stock yards terminating at settling pits to prevent direct disposal of runoff to nearby water bodies.

Compliance status:

Bottom of the OB dump, sub grade dump & other required area are provided with adequate size of retention wall along with garland drainage. The runoff water from the OB dump and mineral stock yards are being collected at mines bottom pit and no water is allowed to direct discharge from the active mine operation.

Special Condition – 24:

Garland and sedimentation pit shall be de-silted after monsoon or as and when required. The runoff discharge quality from runoff management system shall be meet the standards prescribed.

Compliance status:

Entire mine water is collected to the bottom pit & given adequate retention period for silt sedimentation and same is being de-silted after each monsoon. The discharge quality from runoff water is being monitored regularly and the reports are well within the norms. The analysis report is given in table-4.

Special Condition – 25:

Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification. The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:

PH: 6.5-9.0, TSS -<100, BOD – 30 mg/l, Fecal Coliform - <1000 MPN/100 ml

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Compliance status:

Sewage treatment plant has been installed at employee base camp as per BIS specification for the treatment of domestic waste water. The existing sewage treatment plant is an anaerobic treatment plant with capacity of 120 KLD. The treated water is used for sprinkling and other secondary purposes.

The final discharge water from the sewage treatment plant is monitored regularly on fortnightly basis and report is recorded. The quality report for the same is given in table - 5.

Photo Showing Sewage Treatment Plant installed at Employees base camp

Special Condition – 26:

ETP shall be operated all the time for workshop and wastewater generated during mining operation. The quality of the treated wastewater shall remain within the following standards and shall be re-used for washing of vehicles:

PH: 6.5-9.0, TSS -<100, BOD – 30 mg/l, Fecal Coliform - <1000 MPN/100 ml

Compliance status:

There is no wastewater generation except work shop service waste water from the present mining operation. The work shop service center is conferred with ETP treatment plant (Oil & grease trapping system) to treat the service center waste water.

The final discharge water quality from ETP is being monitored regularly on fortnightly basis and results are well within the prescribed standard. The final ETP discharge water quality report is given in table-6.

Photo showing Effluent treatment plant installed at work shop

Special Condition – 27:
Regular monitoring of water quality of upstream and downstream of surface water bodies existed if any within 5 km shall be carried out once in every month and record shall be maintained and submitted to the state pollution control board once in every year. Monitoring shall be carried out through MoEF & CC accredited laboratory.

Compliance status:

Regular monitoring of water quality of up streams and down streams of the nearby water bodies is being carried & submitted to the Board. The latest reports of same are attached here with as Annexure - 8.

Special Condition – 28:
Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), Monsoon (August), Post- monsoon (November) and winter (January) seasons. Consolidated data thus collected should be submitted to the board annually.

Compliance status:

As per requirement, the project is carrying out regular ground water level & ground water quality monitoring on seasonal basis for core zone and buffer zone of the mines lease area (Pre-monsoon, monsoon, post-monsoon and winter). The ground water level monitoring results given in table-7 and third quarter (Post Mon soon season) ground water quality reports are given as Annexure – 9.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 29:

The mine shall take necessary action for the compliance of the following air and water quality standards stipulated in part –A and Part- B of this order:

A. Discharge permitted through the following outlet subject to the standard								
Outlet No.	***Description outlet***	***Point of Discharge***	***Quantity of discharge KL/Hr***	***Prescribed standards***				
				PH	***TSS (mg/l)***	***BOD (mg/l)***	***Fecal coliform (MPN/100 ml0***	***Oil & grease (mg/l)***
01	*Outlet of STP (Domestic effluent)*	*Used for plantation*	*10*	*6.5-9.0*	*100*	*30*	*<1000*	*----*
02	*Mine drainage water/ surface runoff`*	*On land / Inland surface water body*	*1400 (Max.)*	*5.5-9.0*	*100 (Rainy day)/ 50 (non-rainy day)*	*-*	*--*	*10*

B. Emission permitted through the following stack subject to the prescribed standard		
Note: Fugitive emission shall be monitored in the predominant downwind direction at a distance 25.0 :t. 2.0 meters from the source of fugitive emission as per following:		
Particulate Matter	***1200 µg/m³***	
Area	*Monitoring location*	
Mine face / Benches	*Drilling, excavation and loading applicable for operation benches above water table.*	
Haul Roads / Service Roads	*Haul roads to ore processing plant, waste dumps and loading areas and service road.*	
Crushing plant	*Run-off mine unloading at hopper, crushing areas, screen and transfer points.*	
Screening Plant	*Screens, conveying and transportation of ore discharge points.*	
Ore storage and loading	*Intermediate stock bin, pile areas, ore stock bin areas, wagon / truck loading areas.*	
Waste Dump	*Active / reject dumps*	

Compliance status:

All the precaution measures are being under taken to comply the above condition. The said parameters are also being monitored on regular basis. Based on the test results, it's also found that, all the monitored parameters are very well within the prescribed norms.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 30:
Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of mining lease area shall not exceed 75 dB(A) during day time (6.00 AM to 9.00 PM) and 70 dB(A) during night time (9.00 PM to 6 AM).

Compliance status:

Regular maintenance of HEMM & Processing plants is being carried out to minimize the noise level from sources. Apart from that, proper PPEs like ear plug, muffles are also provided to employees. Further, to ensure the noise limit, regular noise monitoring is carried out on fortnightly basis for work zones like crusher plant premises, screen plant premises, ROM loading point, beneficiation plant premises, drilling area & work shop. The noise levels are found to be very well within the prescribed norms, the monitoring reports are given in Table -8.

Special Condition – 31:
Adequate Noise barriers shall be provided surrounding the crushing and screening plants to control noise pollution and avoid impact on wildlife due to operation of crushing and screening plants during night hours.

Compliance status:

The project has provided the adequate noise barriers surrounding the crushing and screening plants to control noise pollution and avoid impact on wildlife due to operation of crushing and screening plants during night hours.

Special Condition – 32:
Online noise monitoring system shall be installed to monitor noise level during night hours.

Compliance status:

The project is already doing the noise monitoring night time offline mode. However, the project is already given the purchase order to procure the online noise monitoring system. Once it was installed, we will intimate the same to your good office.

Special Condition – 33:
Protective barriers shall be provided for the lights to prevent illumination towards the forest area during the night hours.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Compliance status:

Project was planted a number of trees inside the safety zone to prevent the illumination towards the forest area and project was ensure that the no light passes into the forest area during the night hours.

Special Condition – 34:

IP cameras shall be installed at major dust prone areas of the mine such as mine quarry, mineral/fines stockyards, haul roads, transportation roads, mineral handling plants etc. and they shall be connected SPCB server.

Compliance status:

The project Is under process of procurement of the IP camera. After completion of same, it will be connected to SPCB Server.

Special Condition – 35:

Ambient air quality monitoring data, noise monitoring data and water/ waste water quality monitoring data shall be electronically displayed at the entry point of the mine or at suitable location of the mine.

Compliance status:

As per requirement, an electronic display board is installed and data are being displayed in the mines entrance gate with relevant monitoring data like AAQ, Water and noise data etc.

Photo Showing Electronic Display board placed in the mines entrance gate to display the Environmental parameters

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Special Condition – 36:
Plantation of trees shall be undertaken in the colony township, over top soil dumps, OB dumps, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation in nearby village areas in consultation with DFO / Horticulture department. The plantation details shall be submitted to the board by 30th April every Year.

Compliance status:

Plantation has been raised in mines safety zone, OB dumps, and Nallah Gap plantation. In addition to that project has supplied the plants to the locals.

All the planted area is taken almost care like providing water, manure etc. up to saplings self-sustainability. The annual statement submission for plantation is enclosed as Annexure -10 & detailed plantation is given table-9.

Special Condition – 37:
A copy of the annual return (annual return submitted to IBM, Govt. of India/Directorate of Mines, Govt. of Odisha) shall be submitted every year.

Compliance Status:

As per condition, the said Annual IBM Returns is being submitted to the board on regular basis along with consent to operate compliance report. The latest IBM annual return submitted copy for the year 2021 – 22 is enclosed as Annexure – 11.

Special Condition – 38:
The Environmental statement report shall be submitted to the board in proper format every year.
Compliance Status:
The environmental statement report is being submitted to the board for every financial year in stipulated form that is "Form –V". The last submission was on 29.070.2023 vide letter No. UIMM/IP/ENV/JULY/22/05 for the year 2021-22 a copy of the same is enclosed here as Annexure – 12.

Special Condition – 39:
The validity of Consent order is subject to possession of a valid mining scheme.
Compliance Status:

The project has review of mining plan along with progressive mining plan through letter no. MCDR-MiFL0FE/20/2023-BBS-IBM_RO_BBS on dated. 30.03.2023.

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE-1

SUMMARIZED AMBIENT AIR QUALITY MONITORING REPORT: UNCHABALI IRON & MN ORE MINING PROJECT OF SMT. INDRANI PATNAIK, DISTRICT; KEONJHAR, ORISSA.							
Period: APRIL 2022 to March, 2023							
	Month	**Quality Parameter, Results, Micro.gm/CUM**					
		Range	**PM10**	**PM2.5**	**SO_2**	**NO_x**	**CO**
AAQ-C1 – Mines main gate (Core zone)	April-22	AVG	76.10	34.40	8.50	23.80	0.319
	May-22		73.20	33.10	8.20	22.90	0.307
	June-22		76.90	34.70	8.60	24.10	0.322
	July-22		61.60	27.80	6.90	19.30	0.258
	Aug-22		63.90	28.90	7.20	20.0	0.268
	Sept-22		57.30	25.90	6.40	18.0	0.240
	Oct-22		76.90	35.10	8.70	24.40	0.326
	Nov-22		74.50	33.70	8.30	23.30	0.312
	Dec-22		76.70	34.70	8.60	24.0	0.322
	Jan-23		79.10	35.80	8.90	24.80	0.332
	Feb-23		78.0	35.30	8.70	24.50	0.327
	March-23		76.40	34.50	8.60	23.90	0.320
AAQ-C2 – Employees Camp (Core Zone)	April-22	AVG	75.30	35.30	8.40	23.60	0.314
	May-22		72.40	33.90	8.10	22.70	0.303
	June-22		76.10	35.70	8.50	23.80	0.318
	July-22		61.0	28.60	6.80	19.10	0.255
	Aug-22		63.60	29.70	7.10	19.80	0.264
	Sept-22		56.80	26.60	6.40	17.80	0.237
	Oct-22		77.0	36.10	8.60	24.10	0.321
	Nov-22		76.0	35.60	8.50	233.80	0.317
	Dec-22		78.30	36.70	8.80	24.50	0.327
	Jan-23		80.70	37.80	9.0	25.30	0.337
	Feb-23		79.60	37.30	9.10	24.90	0.332
	March-23		77.90	36.50	8.90	24.40	0.325
AAQ-C3-New Store (Core Zone)	April-22	AVG	76.90	34.50	8.60	24.10	0.325
	May-22		74.0	33.10	8.30	23.20	0.313
	June-22		77.70	34.80	8.70	24.40	0.329
	July-22		62.30	27.90	7.0	19.50	0.263
	Aug-22		62.30	27.90	7.0	19.50	0.263
	Sept-22		58.0	26.0	6.50	18.20	0.245
	Oct-22		78.60	35.20	8.80	24.60	0.332
	Nov-22		77.80	34.90	8.70	24.40	0.329
	Dec-22		80.10	35.90	9.0	25.10	0.339
	Jan-23		82.70	37.10	9.30	25.90	0.350
	Feb-23		81.50	36.50	9.10	25.50	0.345
	March-23		79.80	35.80	8.90	25.0	0.337
AAQ-B2 Village Balda (Buffer Zone)	April-22	AVG	64.90	29.30	7.30	20.30	0.275
	May-22		64.20	29.0	7.20	20.10	0.271
	June-22		66.90	30.20	7.50	21.0	0.283
	July-22		55.70	25.20	6.20	17.50	0.236
	Aug-22		47.20	21.30	5.30	14.80	0.20
	Sept-22		39.70	17.90	4.40	12.40	0.168
	Oct-22		55.80	25.20	6.20	17.50	0.236
	Nov-22		59.70	27.0	6.70	18.70	0.252
	Dec-22		58.80	26.60	6.60	18.40	0.249

	Jan-23		59.30	26.80	6.60	18.60	0.251
	Feb-23		58.90	26.60	6.60	18.50	0.249
	March-23		56.90	25.70	6.40	17.80	0.241
AAQ-B3 Village Nayagarh (Buffer Zone)	April-22	AVG	66.20	29.90	7.40	20.70	0.280
	May-22		65.40	29.60	7.30	20.50	0.277
	June-22		68.20	30.80	7.60	21.40	0.289
	July-22		56.80	25.70	6.40	17.80	0.240
	Aug-22		48.20	21.80	5.40	15.10	0.204
	Sept-22		40.50	18.30	4.50	12.70	0.171
	Oct-22		59.60	25.70	6.40	17.80	0.241
	Nov-22		61.50	27.80	6.90	19.30	0.260
	Dec-22		60.60	24.70	6.80	19.0	0.256
	Jan-23		61.10	27.60	6.80	19.20	0.258
	Feb-23		60.70	27.40	6.80	19.0	0.257
	March-23		58.60	26.50	6.60	18.40	0.248
AAQ-B1 Village Unchabali (Buffer Zone)	April-22	AVG	63.60	28.70	7.10	19.90	0.269
	May-22		62.90	28.40	7.0	19.70	0.266
	June-22		65.60	29.60	7.30	20.50	0.277
	July-22		54.60	24.70	6.10	17.10	0.231
	Aug-22		46.30	20.90	5.20	14.50	0.196
	Sept-22		38.90	17.6	4.40	12.20	0.165
	Oct-22		54.70	24.70	6.10	17.10	0.231
	Nov-22		58.50	26.40	6.50	18.30	0.247
	Dec-22		57.70	26.0	6.50	18.10	0.244
	Jan-23		58.20	26.30	6.50	18.20	0.246
	Feb-23		57.80	26.10	6.50	18.10	0.244
	March-23		55.80	25.20	6.20	17.50	0.236
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.							
Monitoring is done through CAAQMS							
CAAQMS-C1 MINES ENTRY AND EXIT GATE	April-22	AVG	74.13	41.60	16.16	16.56	0.76
	May-22		62.47	40.48	36.25	21.67	0.12
	June-22		43.96	32.40	6.90	10.53	0.73
	July-22		40.38	13.19	6.80	19.58	0.13
	Aug-22		42.45	18.32	4.54	17.96	0.54
	Sept-22		50.30	21.83	3.0	18.33	0.77
	Oct-22		62.34	32.51	9.60	17.25	0.45
	Nov-22		78.62	42.68	8.24	16.85	0.14
	Dec-22		64.32	22.54	11.25	19.52	0.62
	Jan-23		57.25	54.23	14.27	15.15	0.51
	Feb-23		95.28	34.26	19.34	14.68	0.12
	March-23		79.52	21.48	6.45	17.91	0.16

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE – 2

FUGITIVE EMISSION DUST MONITORING REPORT

Periods		MONITORING LOCATIONS					
		CRUSHER PLANT	Ore Storage and loading	HAUL ROAD	SCREEN PLANT	MINES FACE	DUMP AREA
		Results, micro.gm/CUM					
April-22	AVG	764	673	680	751	758	736
May-22		739	650	658	726	732	712
June-22		763	672	679	750	757	735
July-22		452	398	402	444	448	435
Aug-22		499	439	444	491	495	481
Sept-22		513	451	456	504	508	494
Oct-22		516	451	459	504	512	494
Nov-22		658	579	586	448	537	439
Dec-22		606	533	539	412	537	439
Jan-23		631	556	562	429	515	421
Feb-23		600	528	534	414	515	405
March-23		615	541	547	424	501	416
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.							

 # TABLE NO.-2 SHOWING FUGITIVE EMISSION MONITORING REPORT

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE-3

SL.NO	Description	Dimensions/Capacity
1	Check Dam cum Settling pond -1	9800 CUM
2	Check Dam - 4	689 CUM
3	Check Dam - 5	2000 CUM

SL.NO	Description	Location	Dimensions/Capacity
1	Check Dam - 13	21⁰ 52' 41.96" N 85⁰ 25'41.97" E	15 M X 2 M X 1.5 M
2	Check Dam - 14	21⁰ 52' 42.88" N 85⁰ 25'50.81" E	15 M X 1.5 M X 1.5 M
3	Check Dam - 15	21⁰ 52' 36.75" N 85⁰ 25'58.75" E	10 M X 1.5 M X 1.5 M
4	Check Dam - 16	21⁰ 52' 35.55" N 85⁰ 25'59.51" E	12 M X 1.5M X 1.5 M
5	Guard Wall	21°52'41.14"N 85°25'54.05"E	300 M
6	Nallah Slope pitching	21°52'45.66"N 85°25'2.67"E	-
7	Plantation	21°52'41.59"N 85°25'53.87"E	150

Table -4

Mines surface run off discharge water Quality report during Monsoon

Sl. No	Description	Unit	Results	Standards
1	pH	--	7.11	**5.5-9.00**
2	TSS	Mg/L	19	**100**
3	Iron	Mg/L	1.50	**10**

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE - 5

SL. NO	DESCRIPTION	Unit	Norms	Apr-22	May - 22	June-22	July-22	Aug-22	Sept-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
1	pH	-	6.5-9.0	7.46	7.66	7.42	7.76	7.84	7.59	7.42	8.05	7.63	10.56	9.78	8.93
2	Total Suspended Solids (TSS)	Mg/l	100	12	27	31	42	24	36	33	29	37	37	41	28
3	(BOD)	Mg/l	30	18.80	9.60	10.10	9.60	10.40	9.20	12.40	8.20	9.6	11.10	10.60	9.80
4	Feacal Caliform	MPN/100 ml	1000	156	152	177	142	47	60	47	34	28	28	27	37
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.															

SHOWING SEWAGE WATER TREATMENT PLANT WATER DISCHARGE REPORT

TABLE – 6

SL .NO	DESCRIPTION	Unit	Norms	Apr-22	May - 22	June-22	July-22	Aug-22	Sept-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
1	pH	-	6.5-8.5	7.30	7.44	7.24	7.66	7.67	7.11	7.39	7.35	7.67	7.67	7.10	8.33
2	Total Suspended Solids (TSS)	Mg/l	100	9.0	14	26	19	19	27	25	41	41	37	21	36
3	Oil & Grease	Mg/l	10	0.5	0.50	1.30	0.90	1.20	1.40	1.5	1.2	1.2	1.10	0.90	1.22
4	COD	Mg/l	150	74	47	53	69	63	101	72	58	58	38	29	36
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.															

SHOWING EFFLUENT WATER TREATMENT PLANT WATER DISCHARGE REPORT

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

Table -7

GROUND WATER LEVEL										
Monitoring Station	**Latitude**	**Longitude**	**RL**	**Description**	**GWL (BGL in M)**					
					June- 22	**July-22**	**Oct-22**	**Dec-22**	**Jan-23**	**Mar-23**
Inside ML area	21°57'37.1"	85°25'56.6"	510	Bore Well	10.00	9.0	8.0	2.0	1.80	2.40
Unchabali	21°52'38.4''	85°26'11.8''	504	Open Well	9.80	8.0	7.60	1.0	1.60	3.0
Kalimati	21°51'56.1''	84°25'05.9''	550	Open Well	11.00	6.08	6.20	1.20	1.0	2.60
Balda	21°53'35.5''	85°24'18.3''	568	Open Well	9.80	9.0	5.90	2.10	1.40	3.10
Malda	21°49'16.9''	85°27'27''	507	Bore Well	10.40	7.0	3.40	2.10	1.50	2.80
Nayagarh	21°50'40.8''	85°26'20.8''	504	Open Well	10.20	8.09	4.20	1.80	2.0	2.60

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE – 8

Sl. No.	Locations	NOISE LEVEL, Leq. In dB (A) from the data log of the monitor.											
		Apr-22	May - 22	June-22	July-22	Aug-22	Sept-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Work Zone Noise Report													
1	MINES PIT	71.70	61.30	61.90	64.10	61.60	64.30	57.0	56.70	52.80	58.70	56.70	54.10
2	LOADING POINT	72.10	63.30	60.20	62.60	67.10	63.70	75.60	70.70	72.10	72.70	56.70	72.0
3	OPERATOR CABIN	71.20	64.40	63.50	59.0	64.60	67.20	64.80	64.80	62.60	60.90	59.10	60.50
4	WORK SHOP	70.20	60.50	62.0	66.20	60.70	57.30	66.60	63.40	62.60	61.0	63.0	63.70
5	SCREEN PLANT	72.90	62.30	59.60	61.40	62.0	56.90	76.70	73.90	72.80	77.0	77.30	78.60
Ambient Noise Report													
1	BALDA	50.30	57.50	56.0	53.20	51.60	55.60	44.70	31.10	34.20	39.20	41.0	44.80
2	MALDA	47.90	53.0	52.10	52.40	49.30	57.20	46.60	32.40	37.10	36.60	44.80	44.80
3	NAYAGARH	53.20	50.20	53.70	51.50	47.30	53.90	50.80	46.0	50.60	46.80	48.50	50.80
4	UNCHABALI	53.20	52.50	57.50	54.60	47.50	53.0	42.40	40.40	34.80	34.0	33.80	43.70
5	OFFICE AREA	48.0	56.20	54.80	54.90	47.40	53.90	41.30	32.70	34.70	36.90	36.90	46.30
6	CAMP AREA	50.60	53.40	53.50	52.30	45.60	56.40	43.80	37.70	38.80	40.70	40.60	41.70
Norms		Residential. Leq: Day Time : 55 dB (A), Night Time : 45 dB (A)											
		Industrial, Leq: Day Time : 75 dB (A), Night Time : 70 dB (A)											
		Work-zone during 8 Hr exposure: 85 dB (A) – Leq.											

 # TABLE NO.-8 SHOWING NOISE MONITORING REPORT

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE-9

Plantation Details				
Sl. No	**Year**	**Number of Saplings**	**Survival Rate**	**Remarks**
1	2022-2023	6500	90%	Dump and Nallah Gap plantation and safety zone gap plantation
2	2021-2022	4200	90%	Nallah Gap Plantation
3	2020-2021	1250	70%	Dump and Safety zone
4	2019-2020	1850	80%	Dump and gap plantation
5	2018-2019	5860	85%	Dump, safety zone and village plantation

ANNEXURE - 1

By e-mail

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES
OFFICE OF THE REGIONAL CONTROLLER OF MINES, BHUBANESHWAR

No. MCDR-MiFL0FE/20/2023-BBS-IBM_RO_BBS Dt : 30/03/2023

Shri/M/s. Indrani Patnaik,
A/6, Commercial Estate Civil Township Rourkela

Sub: Approval of the Review of Mining Plan alongwith Progressive Mine Closure Plan (PMCP) in respect of UNCHABALI Mining Lease Area for Iron and Manganese over an area of 106.1127ha of Smt. Indrani Patnaik, situated in Unchabali and Balda Village,BarbilTaluka, Keonjhar District of Odisha State

Sirs,

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines & Minerals (Development & Regulation) Act, 1957 read with Government of India Order No.S.O.445(E) dated 28.04.1987and S.O. 1857(E) dated 18th May, 2016; I hereby **approve** the Review of Mining Plan along with Progressive Mine Closure Plan (PMCP) in respect of UNCHABALI Mining Lease Area for Iron and Manganeseover an area of 106.1127 ha of Smt. IndraniPatnaik, situated in Unchabali and Balda Village, BarbilTaluka,KeonjharDistrict of Odisha State. This approval is subject to the following conditions:-

A--General Conditions:

(1). The Review of Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.

(2). That this approval of aforesaid Review of Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under and other relevant statutes, order and guidelines as may be applicable to the lease area from time to time

(3). The provisions of the Mines Act, 1952 and Rules and Regulations made thereunder including submission of notices of opening, appointment of manager and other statutory officials as required by the Mines Act, 1952 shall be complied with.

(4).The execution of Review of Mining Plan shall be subjected to vacations of prohibitory orders / notices, if any.

(5). If anything is found to be concealed as required by the Mines Act in the contents of the mining plan and the proposal for rectification has not been made, the approval shall be deemed to have been

withdrawn with immediate effect.

(6). This approval for proposed mining operations and associated activities is restricted to the mining lease area only from this date. The mining lease area is as shown on the statutory plans by the Lessee/QP/Applicant and Indian Bureau of Mines has not undertaken any survey verification of mining lease boundary on the ground.

(7). Your attention is invited to the Supreme Court interim order in W.P. (C) No. 202 dated 12.12.1996 for compliance. The approval of above said Mining Plan is therefore, issued without prejudice to and is subject to the said directions of the Supreme Court as applicable.

(8).This department does not undertake any responsibility regarding correctness of the boundaries of the lease area shown on the ground.

(9).At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

(10). If this approval conflicts with any other law or court order/ Direction under any statute, it shall be revoked immediately.

(11). It shall be mandatory for the project proponent, abstracting ground water, to obtain “No Objection Certificate” from Central Ground Water Authority or, the concerned State/Union Territory Ground Water Authority, as the case may be.

(12).Lessee shall ensure grassing/re-grassing of worked out mining lease area in accordance with Hon’ble Supreme Court Order dated 8/1/2020.

(13). This approval has been given for mining proposal for the year 2023-24 to 2027-28 and are subject to the validity of lease period.

(14).The next Review of Mining Plan for the subsequent period of five years shall become due 180 days before expiry of this document proposal period.

(15)The validity period of the financial assurance shall be renewed before the expiry of the same and should be submitted to this office on or before 1/4/2028.

(16) Analysis and Beneficiation study of BHQ for recovery of Iron ore is to be carried out in Modern Mineral Processing Laboratory, Indian Bureau of Mines, Nagpur before production of the same.

Yours Faithfully

(B.L.GURJAR)

Regional Controller Of Mines,

Indian Bureau of Mines, Bhubaneswar

Copy for information to :-

(1).The Controller of Mines (EZ), Indian Bureau of Mines, CP-13, Sector V, Salt Lake City, Kolkata- 700 091 by mail. zo.kol@ibm.gov.in

(2). The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, Bhubaneswar– 751001, Email- directorateofmines@orissaminerals.gov.in.

(3). The Director of Mines Safety , Chaibasa, Email-altafhussainaksa@gmail.com

(4).Qualified Person by mail.

(5). Concerned MCDR file.

ANNEXURE - 2

No.J-11015/214/2008-IA.II (M)
Government of India
Ministry of Environment & Forests
******

Paryavaran Bhawan,
C.G.O. Complex, Lodi Road,
New Delhi – 110 003

Dated the 23rd July, 2009

To

M/s Indrani Patnaik,
A/6, Commercial Estate,
Civil Township,
Rourkela –769 004,
Orissa

Subject: Expansion of Unchaballi Iron Ore and Manganese Ore Mining Project of M/s Indrani Patnaik located in Village(s) Unchaballi & Balda, Tehsil Champua, District Keonjhar, Orissa -environmental clearance regarding.

Sir,

This has reference to your letter No. UBIOM/MoEF/EC/2009/01 dated 23.05.2009 and subsequent letters dated 29.05.2009 and 15.06.2009 on the subject mentioned above. The Ministry of Environment and Forests had earlier prescribed Terms of Reference (TORs) to the project on 25.11.2008 for undertaking detailed EIA study. The proposal is for enhancement of production of iron ore from 0.21million tonnes per annum (million TPA) to 4million TPA. The project was earlier accorded environmental clearance by the Ministry for 0.21million TPA production of iron ore on 05.06.2006. The total mine lease area of the project is 106.1127ha, out of which 2.6607ha is an agriculture land, 103.432ha is forestland and 0.02ha is others. Area proposed for mining is 84.6177ha, an area of 6.965ha is kept for temporary storage of over burden, 1.2ha for storage of sub-grade ore, 1.9ha for infrastructure, 1.1ha for roads, 6.05ha for proposed railways siding and 4.28ha for safety zone. The Baitarni River is flowing in the buffer zone of the mine at a distance of 2.5km from the mine lease boundary. In addition, eight water bodies namely the Jalpa Nadi(1.5km), the Kasi Nallah(3.5km), the Dolko Nallah(7km), the Dalki Nallah(7.5km), the Ghagra Nallah and the Jagdhara Nadi(8km), the Gahirajala Nallah(8.5km) and the Mithida Spring(9km) are located in the buffer zone of the mine. No national park/wildlife sanctuary/biosphere reserve/tiger reserve/elephant reserve etc. are reported to be located in the core and buffer zone of the mine and that the area does not report to form corridor for Schedule-I fauna. In support of this, a map duly authenticated by the Divisional Forest Officer cum Wildlife Warden, Keonjhar Division has been provided. The Karo Karampada Elephant Corridor is reported to be at a distance of about 25 km from the mine lease. Five Reserve Forests namely the Khajuridihi RF(6km), the Chamakpura (7.5KM), the Siddhamatha RF (8KM), the Baitarni RF (8.5KM) and the Nayagarh RF (9km) are located in the buffer zone of the mine. The mine working will be opencast by mechanized method

..2/-

involving drilling and blasting. The targetted production capacity of the mine is 40,00,000TPA of iron ore and the life of mine is 8years. There will be no beneficiation plant as part of this project; however, crushing and screening will be carried out. The mineral will be transported through the road. The topography of the area is undulated and hilly at an elevation above mean sea level ranging from 530m to 720m AMSL. The ultimate working depth of mine will be 540m AMSL. The ground level is reported at 530m AMSL. The groundwater table in the core zone reported to vary from 476m AMSL(54m bgl) to 478m AMSL(52m bgl) during pre-monsoon and the post-monsoon. The mine working will not intersect the groundwater table. The peak water requirement of the project is estimated as 150m^3 per day, which will be obtained from the groundwater. There is no population in the core zone, therefore, displacement of population and R&R has not been envisaged. It is estimated that 76800m^3 per month of solid waste will be generated, which will be temporarily disposed of in the earmarked area for backfilling. A total of 0.03millon m^3 of OB has already been accumulated and another 6.01million m^3 of OB is proposed to be generated during the entire life of the mine. Backfilling proposed from the year 2011-2012 onwards and the accumulated waste will be liquidated by the year 2016. Plantation will be raised in an area of 98.8627ha at the end of the mine life and there will be no void left during the post mining stage. The public hearing of the project was held on 05.03.2009 as per the EIA Notification, 2006 for expansion of production of iron ore from 0.21million TPA to 4 million TPA over an area of 106.1127ha. The Ministry of Environment and Forests had conveyed its approval under Forest (Conservation) Act, 1980 for diversion of 35.275 ha forestland (34.675ha for mining and 0.6ha for road) on 03.05.2007. The capital cost of the project is Rs.6121Lakhs and the capital cost for the environmental protection measures is proposed as Rs.61Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.21.98Lakhs.

2. The Ministry of Environment and Forests has examined the application in accordance with the EIA Notification, 2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Unchaballi Iron Ore and Manganese Ore Mining Project of M/s Indrani Patnaik for an annual production capacity of four (4.0) million tonnes of iron ore by opencast mechanised method involving total mining lease area of 106.1127ha, subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

(i) The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated therein.

(ii) Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 103.432ha forestland involved in the project shall be obtained before starting mining operation in that area. Till such time mining activities shall be restricted to an area of 35.275 ha forestland for which approval under Section-2 of the Forest (Conservation) Act, 1980

13/-

was granted by the Ministry of Environment and Forests on 03.05.2007. Environmental clearance is subject to grant of forestry clearance. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance.

(iii) The environmental clearance is subject to approval of the State Land Use Department, Government of Orissa for diversion of agricultural land for non-agricultural use.

(iv) The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.

(v) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. Adequate measures shall be taken for conservation and protection of the seasonal streams, if any emanating from the mine lease area during the course of mining operation.

(vi) The top soil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.

(vii) The project proponent shall not undertake beneficiation of the mineral as part of this project. For undertaking beneficiation, necessary prior approval under the provisions of EIA Notification, 2006 shall be obtained.

(viii) The over burden (OB) generated during the mining operation shall be temporarily stacked at earmarked dump site(s) only for back-filling. Backfilling shall commence from the year 2011-2012 onwards. The accumulated waste shall be liquidated by the year 2016 and there shall be no external dump thereafter. The backfilled area shall be reclaimed by plantation. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.

(ix) Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil, mineral and temporary OB dumps to prevent run off of water and flow of sediments directly into the Baitarni River, the Jalpa Nadi, the Kasi Nallah, the Dolko Nallah, the Dalki Nallah, the Ghagra Nallah, the Jagdhara Nadi, the Gahirajala Nallah, the Mithida Spring and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly.

..4/-

Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and the temporary over burden dumps to prevent run off of water and flow of sediments directly into the Baitarni River, the Jalpa Nadi, the Kasi Nallah, the Dolko Nallah, the Dalki Nallah, the Ghagra Nallah, the Jagdhara Nadi, the Gahirajala Nallah, the Mithida Spring and other water bodies 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 settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

(x) Dimension of the retaining wall at the toe of the temporary over burden dump(s) and the OB benches within the mine to check run-off and siltation shall be based on the rainfall data.

(xi) Plantation shall be raised in an area of 98.8627ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, mine benches, along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per hectare.

(xii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading and unloading point and all transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

(xiii) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.

(xiv) Regular monitoring of water quality upstream and downstream of the Kasi Nallah, the Dolko Nallah, the Dalki Nallah, the Ghagra Nallah, the Gahirajala Nallah and the Mithida Spring shall be carried out and record of monitored data should be maintained and submitted to the Ministry of Environment and Forests, its Regional Office, Bhubneswar, the Central Groundwater Authority, Regional Director, the Central Ground Water Board, the State Pollution Control Board and the Central Pollution Control Board.

(xv) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.

(xvi) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells

P.5/-

and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubneswar, the Central Ground Water Authority and the Regional Director, Central Ground 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.

(xvii) Appropriate mitigative measures shall be taken to prevent pollution of the Baitarni River, the Jalpa Nadi and the Jagdhara Nadi, in consultation with the State Pollution Control Board.

(xviii) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) required for the project.

(xix) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.

(xx) Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded. No transportation of ore outside the mine lease area shall be carried out after the sunset.

(xxi) No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

(xxii) Drills shall either be operated with the dust extractors or equipped with water injection system.

(xxiii) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

(xxiv) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.

6/-

(xxv) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.

(xxvi) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.

(xxvii) Provision 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 STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

(xxviii) The critical parameters such as SPM, RSPM, NOX in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. 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 circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

(xxix) 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.

B. General conditions

(i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.

(ii) No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.

(iii) Atleast four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO_2 & NOx monitoring. Location of the stations should be decided based

7/-

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.

(iv) Data on ambient air quality (RSPM, SPM, SO_2 & NOx) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.

(v) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

(vi) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.

(vii) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

(viii) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

(ix) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

(x) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.

(xi) The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

(xii) The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

8/-

(xiii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of CPCB and the SPCB. The proponent shall upload the status of compliance of the EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of CPCB and the SPCB.

(xiv) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

(xv) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.

(xvi) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, at Bhubaneswar by e-mail.

(xvii) 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 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 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 Bhubaneswar.

3. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

P.9/-

5. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made thereunder and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Orissa and any other Court of Law relating to the subject matter.

6. Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.

23/07/09

(SATISH C. GARKOTI)
Additional Director (S)

Copy to:

(i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.

(ii) The Secretary, Department of Environment, Government of Orissa, Secretariat, Bhubaneswar.

(iii) The Secretary, Department of Mines and Geology, Government of Orissa, Secretariat, Bhubaneswar.

(iv) The Secretary, Department of Forests, Government of Orissa, Secretariat, Bhubaneswar.

(v) The Chief Wildlife Warden, Government of Orissa, Bhubaneswar.

(vi) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.

(vii) The Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharpur, Bhubaneshwar-751023.

(viii) The Chairman, Orissa State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneshwar-751012.

(ix) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.

(x) The District Collector, Keonjhar District, Government of Orissa.

(xi) EI Division, Ministry of Environment & Forests, EI Division, New Delhi.

(xii) Monitoring File.

(xiii) Guard File.

(xiv) Record File.

40-42

Annexure-IV

ANNEXURE - 3

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
EASTERN REGIONAL OFFICE
A/3, CHANDRASEKHARPUR, BHUBANESWAR - 751 023
TEL. : (Off.) 2301213, 2302432, 2302443, 2302452, 2302453
FAX : 0674-2302432. GRAM : PARYAVARAN, BHUBANESWAR
Email : mef@ori.nic.in

भारत सरकार
पर्यावरण एवं वन मंत्रालय,
पूर्वी क्षेत्रीय कार्यालय
ए/3, चन्द्रशेखरपुर, भुवनेश्वर -751 023
तार - पर्यावरण, भुवनेश्वर

8(21)40/2004-FCE

May 3, 2007

To

The Principal Secretary,
Forest & Environment Department,
Govt. of Orissa,
Bhubaneswar.

Sub:- Diversion of 35.275 ha of forest land in village Unchabali in Keonjhar district for Iron Ore Mining by Smt. Indrani Patnaik of Keonjhar.

I am directed to refer to your letter No. 10F(Cons)78/2004.5763/F&E dated 13.04.2007 on the above mentioned subject seeking prior approval of the Central Govt. in accordance with Section-2 of the Forest(Conservation) Act, 1980.

After careful consideration of the proposal of the State Government, the Central Government hereby conveys its approval under Section-2 of the Forest(Conservation) Act, 1980 for diversion of 35.275 ha (34.675 ha for mining and 0.6 ha for road) of forest land in village Unchabali in Keonjhar district for Iron Ore Mining by Smt. Indrani Patnaik of Keonjhar, subject to the compliance of the following conditions:-

i) Legal status of the forest land diverted shall remain unchanged.

ii) Compensatory afforestation shall be raised and maintained over 35.275 ha of non-forest land made available in village Guptaganga under Telkoi Tahasil mutated in favour of State Forest Department and handed over to Forest Department at the project cost and the non-forest land shall be declared as PF/RF. The Nodal Officer will submit a report regarding the above issue within 6 months.

iii) An undertaking from the user agency shall also be obtained to the effect that in case the rates of NPV are revised upwards, the additional/differential amount shall be paid by the User Agency.

iv) The State Government shall deposit Net Present Value of Rs. 2,64,56,250.00, Compensatory Afforestation of Rs. 5,77,000.00, Safety Zone of Rs. 1,39,300.00, Afforestation of Safety Zone of Rs. 2,21,600.00, Wildlife Management Plan Scheme of Rs. 15,91,691.00, Site Specific Wildlife Management Scheme of Rs. 21,75,000.00 and cost of protection, conservation & enrichment of 64.332 ha of balance forest area not proposed for diversion with the Ad-hoc Body of Compensatory Afforestation Fund Management and Planning Authority(CAMPA), in Account No. CA 1585 of Corporation Bank (A Government of India Enterprises), Block-11, Ground Floor, CGO Complex, Phase-1, Lodhi Road, New Delhi – 110 003, as per the instruction communicated vide letter No. 5-2/2006-FC dated 20.05.2006.

v) RCC pillars of 4 feet height shall be erected to demarcate the broken up area by the user agency at the project cost and will be marked with forward and back bearing and a site map be prepared showing the positions of all the boundary pillars with G.P.S. reading for periodic monitoring by the

vi) The 35.275ha forest land proposed for diversion shall be used for mining (34.675 ha) and road(0.600 ha) only. No overburden dumping or any other ancillary activity will be undertaken thereat.

vii) Mining shall be done strictly as per the mining plan approved by the IBM and copy of revised Mining Plan(s) for subsequent five year periods shall be furnished to the Regional Office without fail.

viii) The period of permission granted Under the Forest(Conservation) Act, 1980 shall be co-terminus with the period of current mining lease granted under MMRD Act or 20 years whichever is earlier.

ix) Reclamation of mined out area as well as Over Burden dumps will be done as per a reclamation plan prepared in this regard. Progress of reclamation will be periodically monitored by the State Forest Department. Serious lapse in achieving reclamation targets shall invite severe action leading to even closure of mine.

x) The Forest Department shall carry out regeneration, maintenance of safety zone area at the funds provided by the User agency.

xi) The Forest Department shall carry out afforestation over degraded forest land equivalent one and half times of the safety zone with the funds provided by the User Agency.

xii) The Regional Wildlife Management Plan prepared for Bonai-Keonjhar belt shall be implemented with the funds provided by the User Agency. The specific Wildlife Management Plan, if any, approved by the Chief Wildlife Warden, shall also be implemented at project cost with the additional funds realized from the User Agency.

xiii) Blasting, if required to be undertaken, shall be done in a manner causing least disturbance to wild animals particularly elephants. The timing of blasting should be kept flexible during seasonal movement of elephants or during period of their migration or if they happen to be around otherwise in consultation with the D.F.O.

xiv) The Scheme prepared by the Forest Department for protection, conservation and enrichment of the vegetative cover over balance 64.332 ha forest land not proposed for diversion shall be implemented at project cost under supervision of the Forest Department.

xv) Standing trees over forest land proposed for diversion shall be felled in phases only on forest land needed to be broken strictly as per the Mining Plan with prior permission of the D.F.O.

xvi) The user agency shall ensure that no damage to the available wildlife or to the forest flora in the neighbouring forest is caused by labourers/workmen engaged by the project authorities or contractor working under them.

xvii) No labour camp shall be allowed in the forest area and Sufficient alternate fuel from the approved source shall be provided by the user agency or the contractors working under them to the labourers engaged in the project at project cost to ensure reduction of pressure on nearby forests.

xviii) The forest land shall not be used for any purpose other than that specified in the proposal.

xix) Adequate soil and water conservation measures, as and when required, shall be taken by the User Agency in consultation with Forest Officials to check any soil erosion in the lease hold area.

) All necessary measures should be taken by the user agency to protect environment.

xi) Any other conditions that the Central Government may impose from time to time in the interest of afforestation, conservation and management of flora and fauna in the area shall be complied by the user agency.

xxii) In case of non-compliance of any of the above conditions, the concerned Divisional Forest officer shall report through the State Govt. to this office as per procedure laid down in the clause 1.9 of guidelines issued under Forest(Conservation) Act, 1980 on 25.10.1992.

The State Government shall ensure compliance of all the above conditions.

Yours faithfully,

(S. MOHAPATRA)
DY. CONSERVATOR OF FORESTS(CENTRAL)

y to:-

1. The Inspector General of Forests(FC), Ministry of Environment & Forests, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi – 110 003.
2. The Principal Chief Conservator of Forests, Govt. of Orissa, Aranya Bhawan, C.S.Pur, Bhubaneswar – 16.
3. The Nodal Officer, O/o the Principal Chief Conservator of Forests, Govt. of Orissa, Aranya Bhawan, C.S.Pur, Bhubaneswar – 16.
4. The Divisonal Forest Officer, Keonjhar Forest Divison, Keonjhar.
5. Smt. Indrani Patnaik, Mines Owner, Rourkela.
6. Guard File.

S Mohapatra
3/7/2007
DY. CONSERVATOR OF FORESTS(CENTRAL)

F. No. 8-67/2014-FC
Government of India
Ministry of Environment, Forests and Climate Change
(Forest Conservation Division)
****

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi –110003.
Dated: 11th September, 2015

To,

The Principal Secretary (Forests),
Government of Odisha,
Bhubaneswar.

Sub: Diversion of additional 68.157 hectares of forest land including 3.825 hecatres of forest land inside safety zone, in addition to 35.275 hectares of DLC forest land already diverted, within total Mining lease area of 106.1127 hectares in Unchabali Iron & Manganese ore mines of Smt Indrani Patnaik, in Keonjhar district, Odisha.

Sir.

I am directed to refer to the Government of Odisha's letter No 10 F (Cons.) 155/ 2014-14856/ F & E dated 11th August 2014 on the above mentioned subject, seeking prior approval of the Central Government under Section- 2 of the Forest (Conservation) Act, 1980. After careful examination of the proposal by the Forest Advisory Committee constituted by the Central Government under Section-3 of the said Act, 'in-principle' approval to the proposal was granted by the Ministry vide its letter of even number dated 30th December, 2014 subject to fulfillment of certain conditions prescribed therein. The State Government has furnished compliance report in respect of the conditions stipulated in the 'in-principle' approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government of Orissa vide their letter No. 10F (Cons)-37/2015/ 8276/ F & E, Bhubaneswar dated 18th May, 2015, final approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for additional 68.157 hectares of forest land including 3.825 hectares of forest land inside safety zone, in addition to 35.275 hectares of DLC forest land already diverted, within total Mining lease area of 106.1127 hectares in Unchabali Iron & Manganese ore mines of Smt. Indrani Patnaik, in Keonjhar district, Odisha, subject to the following conditions:

(i) Legal status of the diverted forest land shall remain unchanged;

(ii) Compensatory afforestation over the non-forest land, equal in extent to the forest land being diverted, shall be raised and maintained by the State Forest Department from funds already provided by the user agency;

(iii) The non-forest land transferred and mutated in favour of the State Forest Department shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act latest within a period of six months from the date of issue of Stage--II approval. The Nodal Officer shall report compliance in this regard along with a copy of the original

notification declaring the non-forest land under Section 4 or Section 29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act, as PF or RF, as the case may be, within the stipulated period to the Central Government for information and record;

(iv) Following activities, as per approved plan/schemes, shall be undertaken by the user agency under the supervision of the State Forest Department:

(a) Mitigative measures to minimize soil erosion and choking of streams shall be implemented in accordance with the approved Plan in consultation with the State Forest Department.

(b) Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved scheme;

(c) Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved scheme;

(d) Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that that angles of repose at any given place is less than 28^{0} ; and

(e) No damage shall be caused to the top-soil and the user agency will follow the top soil management plan.

(v) The User Agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;

(vi) The User agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;

(vii) The State Government shall seek approval of Central Government under the FC Act for diversion 0.469 ha of forest land reported to be forest *kissam* as on 25.10.1980 by the Tahasildar , Barbil out of the total non-forest land over 2.6827 ha treated as non-forest as per Hal RoR.

(viii) The User agency shall implement the provisions, as contained in the Regional Wildlife Management Plan in consultation with the Chief Wildlife Warden, Odisha from the funds already provided by the user agency for this purpose:

(ix) The User agency shall implement the provisions, as contained in the approved site specific Wildlife Conservation Plan in consultation with the Chief Wildlife Warden, Odisha from the funds already provided by the user agency for this purpose;

(x) User agency shall take appropriate measures such as construction of ponds, water conservation / harvesting structure *etc.* to ensure conservation of water in and around the project site;

(xi) The State Forest Department shall organize environmental awareness programme to generate awareness among the employees as well as local residents on issues pertaining to conservation and protection of environment from the funds already provided by the User agency;

(xii) The user agency shall abide by the provision shall take appropriate measures which will be suggested by the State Government based on the outcome of study, being conducted by the National Institute of Technology, Rourkela to assess impact of this project on floral and faunal biodiversity;

(xiii) Tree felling should be taken up in phases strictly as per requirement under the supervision of the Divisional Forest Officer, Keonjhar Forest Division;

(xiv) User agency shall execute the Phased Reclamation Plan at their cost; and

(xv) The user agency shall surrender mined out and biologically reclaimed forest area to the State Forest Department as per the schedule for surrendering of such land submitted by the State Government;

(xvi) Following activities shall be undertaken by the user agency for the management of safety zone:

(a) User agency shall ensure demarcation of boundary of safety zone (7.5 meter strip all along the outer boundary of the mining lease area), and its protection by erecting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deploying adequate number of watchers under the supervision of the State Forest Department.

(b) In case of the mining leases adjoining the habitation stretch of the boundary of the safety zone of the lease adjacent to the habitation/roads should be properly fenced by the user agency at the project cost to protect the vegetation /regeneration activities in the safety zone.

(c) Safety zone shall be maintained as green belt around the mining lease and to ensure dense canopy cover in the area, regeneration shall be taken in this area by the user agency at the project cost under the supervision of the State Forest Department.

(d) Afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the area under safety zone shall also be done by the user agency at the project cost under the supervision of the State Forest Department.

(xvii) Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended or Rules framed there under;

(xviii) User agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.4), if any, located in the area within 100 m. from outer perimeter of the mining lease;

(xix) User agency shall undertake de-silting of the village tanks and other water bodies located within five km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies, whenever required;

(xx) User agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, Government of

Odisha and the Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (Eastern Zone), Bhubaneswar. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Addl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed;

(xxi) No labour camp shall be established on the forest land;

(xxii) User agency shall provide firewood preferably alternate fuel to the labourers and the staff working at the site so as to avoid any damage and pressure on the adjacent forest areas;

(xxiii) The boundary of the mining lease and safety zone shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar;

(xxiv) Forest land shall not be used for any purpose other than that specified in the proposal;

(xxv) The user agency shall submit the annual self-compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly;

(xxvi) Any other condition that the Regional Office (Eastern Zone), Bhubaneswar of this Ministry and the Government of Odisha may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; and

(xxvii) The User Agency and the State Government shall ensure strict compliance of conditions of Stage-I approval for which undertakings has been obtained from the User Agency and also provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.

Yours faithfully,

(Nisheeth Saxena)
Assistant Inspector General of Forests

Copy to:

1. The Principal Chief Conservator of Forests, Government of Odisha, Bhubaneswar.
2. The Nodal Officer, the Forest (Conservation) Act, 1980 Forest Department, Government of Odisha, Bhubaneswar.
3. The Addl. Principal Chief Conservator of Forests (Central), Regional Office (Eastern Zone), Bhubaneswar.
4. User Agency.
5. Monitoring Cell, FC Division, MoEF & CC, New Delhi.
6. Guard File.

(Nisheeth Saxena)
Assistant Inspector General of Forests

Event Report

Date/Time Tran at 13:52:49 June 17, 2022
Trigger Source Geo: 0.510 mm/s, Mic: 2.00 pa.(L)
Range Geo: 254 mm/s
Record Time 4.75 sec (Auto=3Sec) at 1024 sps
Job Number: 617
Notes
Location: UNCHABALI IRON&MN. MINES
Client: SMT.INDRANI PATNAIK
User Name: KANNAN
General:

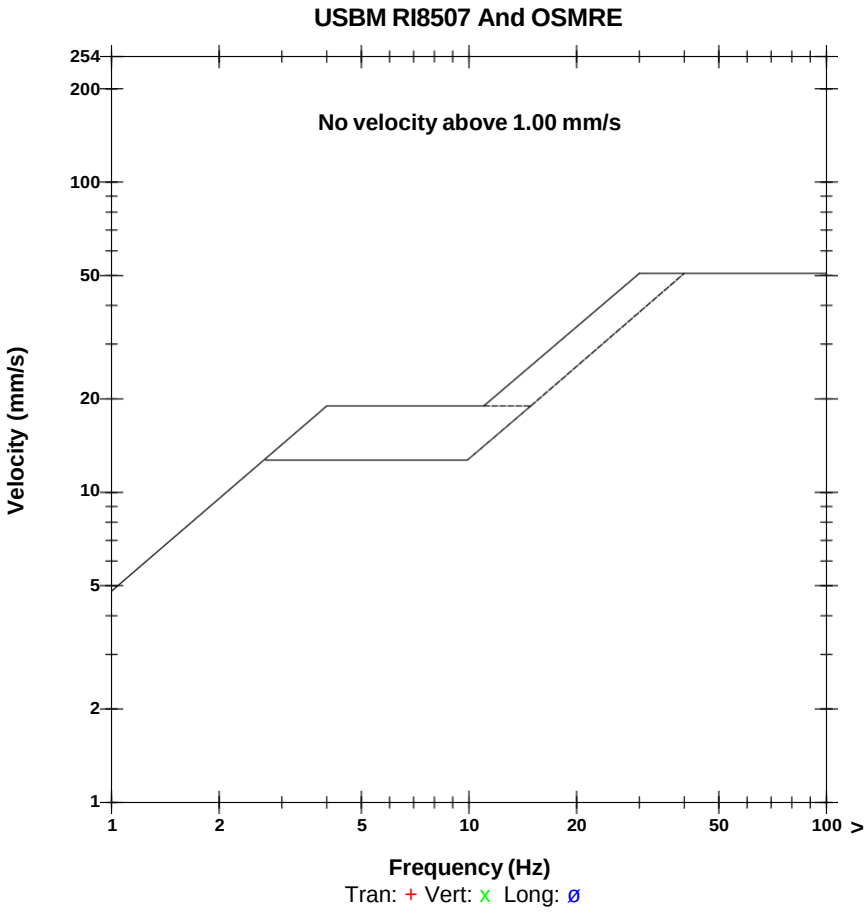
Serial Number BE9928 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
File Name K928JJS9.810
Scaled Distance 5.8 (300.0 m, 3003.0 kg)

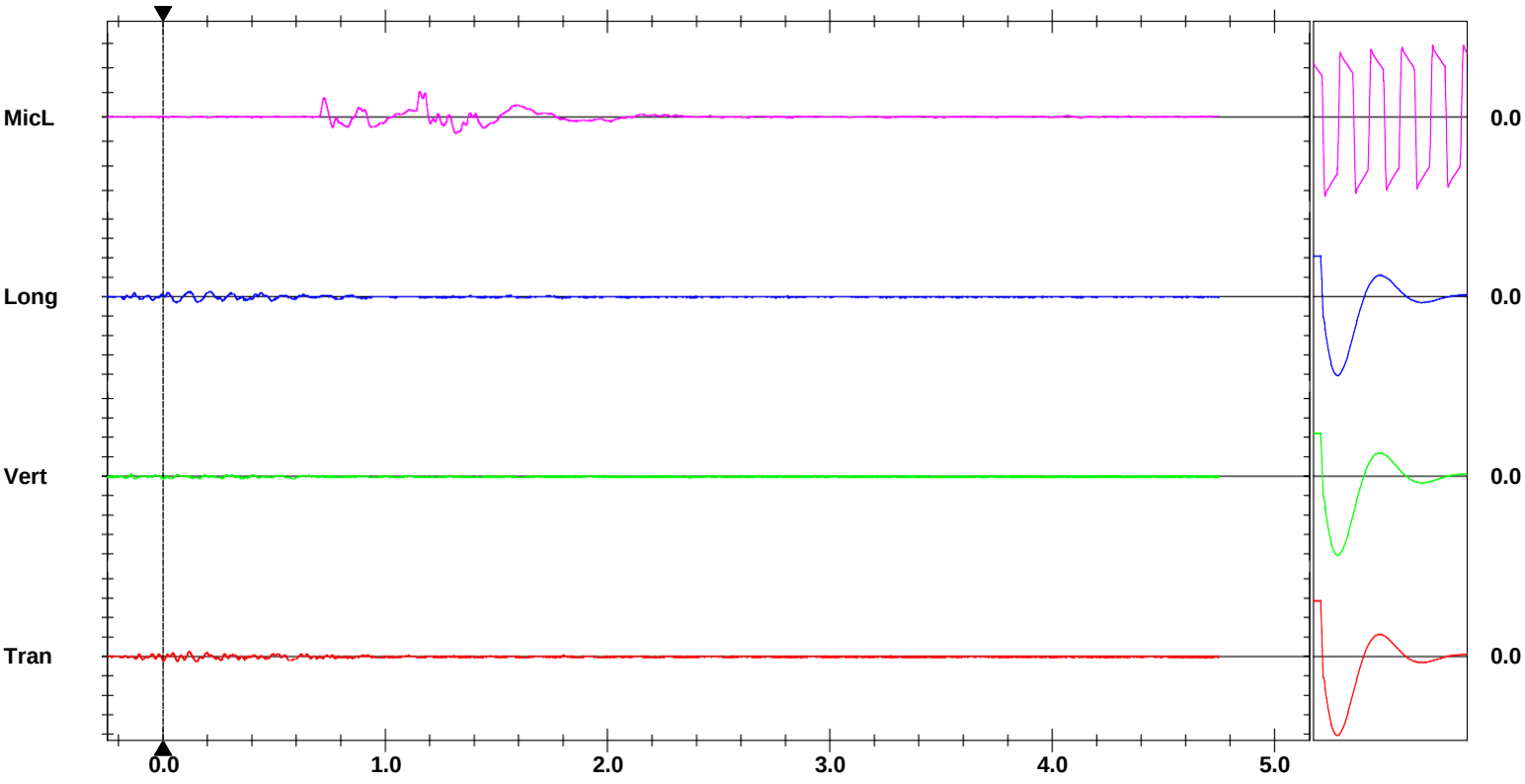
Extended Notes
BLASTING RL :627
BURDEN : 3.5 M
SPACING :3.0 M
NO.OF HOLES.40
DEPTH : 9.5 M
EXPLOSIVE :3003 kg
VOLUME : 3990 CUM
CHARGE FACTOR : 0.75 kg/cum

Microphone Linear Weighting
PSPL 10.5 pa.(L) at 1.155 sec
ZC Freq 3.2 Hz
Channel Test Passed (Freq = 20.5 Hz Amp = 456 mv)

	Tran	Vert	Long	
PPV	0.508	0.254	0.635	mm/s
ZC Freq	30	>100	12	Hz
Time (Rel. to Trig)	0.000	-0.172	0.058	sec
Peak Acceleration	0.0265	0.0133	0.0133	g
Peak Displacement	0.00713	0.00223	0.00924	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.4	Hz
Overswing Ratio	3.6	3.5	3.7	

Peak Vector Sum 0.823 mm/s at 0.063 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check
Trigger = ▶ ◀

ANNEXURE - 5

envea
KNOWLEDGE IN ACTION

Calibration Date-26.2.2022

Location	Type of Analyzer	SL No
Unchabali Iron & Mn Mines os Smt Indrani Patnaik Konjhar	PM10	MP101M+ 6855
	PM2.5	MP101M+ 6857
	SOx	AF22e 639
	NOx	AC32e 425
	CO	CO12e 506

GAS ANALYZER CALIBRATION

GAS PARAETER	SPAN GAS THROUGH CALIBRATOR(PPM)	'K' FACTOR BEFORE CALIBRATION	'K' FACTOR AFTER CALIBRATION
NO	.3	.768	.801
	.5		
SO2	.3	1.52	1.48
	.4		
CO	2	1.15	1.147
	4		

DUST ANALYZER CALIBRATION

SL NO	REFERENCE GAUGE CONC(ug/m3)	MEASURE CONC (ug/cm2)	K FACTOR BEFORE CALIBRATION	K FACTOR AFTER CALIBRATION
PM10	813	826.14	.809	.788
PM2.5	822	831.37	.911	.902

Calibrated By

M/s Envea India Pvt Ltd

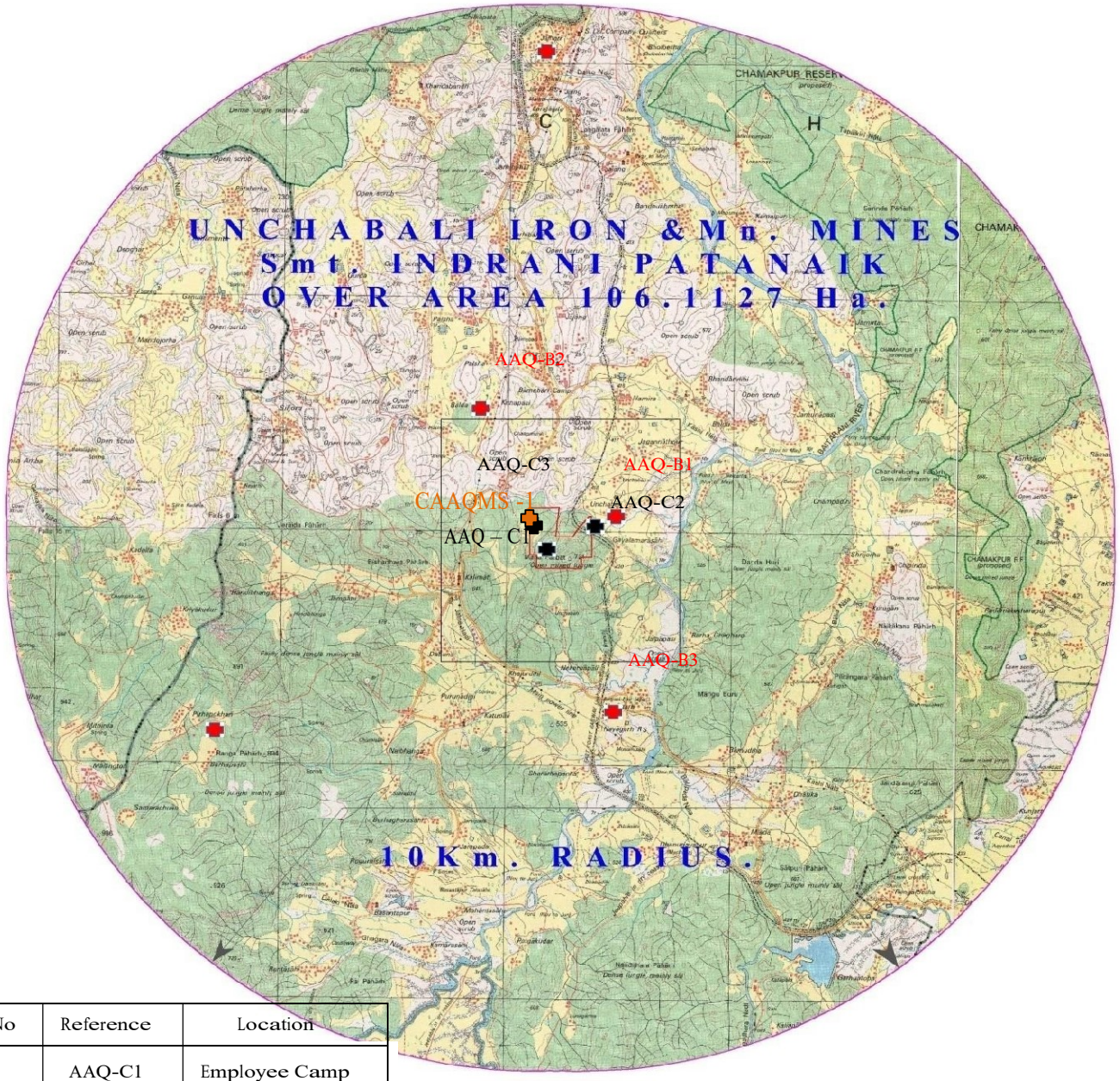
Pravat 26.2.2022

Pravat Kumar Patra

Engineer - CSD

ANNEXURE - 6

AAQ MONITORING STATION



SL. No	Reference	Location
1	AAQ-C1	Employee Camp
2	AAQ-C2	Mines Entry And Exit Gate
3	CAAQMS	Near magazine area

SL.No	Reference	Location
1	AAQ-B1	Village Unchabali
2	AAQ-B2	Village Balda
3	AAQ-B3	Village Nayagardh

AAQ MONITORING LOCATION

- CORE ZONE MONITORING LOCATIONS

- BUFFERZONE MONITORING LOCATION

- CONTINUOUS AMBIENT AIR MONITORING STAION CAAQMS

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

TABLE-1

SUMMARIZED AMBIENT AIR QUALITY MONITORING REPORT: UNCHABALI IRON & MN ORE MINING PROJECT OF SMT. INDRANI PATNAIK, DISTRICT; KEONJHAR, ORISSA.							
Period: APRIL 2022 to March, 2023							
	Month	**Quality Parameter, Results, Micro.gm/CUM**					
		Range	**PM10**	**PM2.5**	**SO_2**	**NO_x**	**CO**
AAQ-C1 – Mines main gate (Core zone)	April-22	AVG	76.10	34.40	8.50	23.80	0.319
	May-22		73.20	33.10	8.20	22.90	0.307
	June-22		76.90	34.70	8.60	24.10	0.322
	July-22		61.60	27.80	6.90	19.30	0.258
	Aug-22		63.90	28.90	7.20	20.0	0.268
	Sept-22		57.30	25.90	6.40	18.0	0.240
	Oct-22		76.90	35.10	8.70	24.40	0.326
	Nov-22		74.50	33.70	8.30	23.30	0.312
	Dec-22		76.70	34.70	8.60	24.0	0.322
	Jan-23		79.10	35.80	8.90	24.80	0.332
	Feb-23		78.0	35.30	8.70	24.50	0.327
	March-23		76.40	34.50	8.60	23.90	0.320
AAQ-C2 – Employees Camp (Core Zone)	April-22	AVG	75.30	35.30	8.40	23.60	0.314
	May-22		72.40	33.90	8.10	22.70	0.303
	June-22		76.10	35.70	8.50	23.80	0.318
	July-22		61.0	28.60	6.80	19.10	0.255
	Aug-22		63.60	29.70	7.10	19.80	0.264
	Sept-22		56.80	26.60	6.40	17.80	0.237
	Oct-22		77.0	36.10	8.60	24.10	0.321
	Nov-22		76.0	35.60	8.50	233.80	0.317
	Dec-22		78.30	36.70	8.80	24.50	0.327
	Jan-23		80.70	37.80	9.0	25.30	0.337
	Feb-23		79.60	37.30	9.10	24.90	0.332
	March-23		77.90	36.50	8.90	24.40	0.325
AAQ-C3-New Store (Core Zone)	April-22	AVG	76.90	34.50	8.60	24.10	0.325
	May-22		74.0	33.10	8.30	23.20	0.313
	June-22		77.70	34.80	8.70	24.40	0.329
	July-22		62.30	27.90	7.0	19.50	0.263
	Aug-22		62.30	27.90	7.0	19.50	0.263
	Sept-22		58.0	26.0	6.50	18.20	0.245
	Oct-22		78.60	35.20	8.80	24.60	0.332
	Nov-22		77.80	34.90	8.70	24.40	0.329
	Dec-22		80.10	35.90	9.0	25.10	0.339
	Jan-23		82.70	37.10	9.30	25.90	0.350
	Feb-23		81.50	36.50	9.10	25.50	0.345
	March-23		79.80	35.80	8.90	25.0	0.337
AAQ-B2 Village Balda (Buffer Zone)	April-22	AVG	64.90	29.30	7.30	20.30	0.275
	May-22		64.20	29.0	7.20	20.10	0.271
	June-22		66.90	30.20	7.50	21.0	0.283
	July-22		55.70	25.20	6.20	17.50	0.236
	Aug-22		47.20	21.30	5.30	14.80	0.20
	Sept-22		39.70	17.90	4.40	12.40	0.168
	Oct-22		55.80	25.20	6.20	17.50	0.236
	Nov-22		59.70	27.0	6.70	18.70	0.252
	Dec-22		58.80	26.60	6.60	18.40	0.249

Compliance Status on stipulated conditions in approved Consent to operate of "Unchabali Iron and Mn. of Smt. Indrani Patnaik" located in village(s) Unchabali & Balda, Sub-division Champua, District Keonjhar, Odisha

	Jan-23		59.30	26.80	6.60	18.60	0.251
	Feb-23		58.90	26.60	6.60	18.50	0.249
	March-23		56.90	25.70	6.40	17.80	0.241
AAQ-B3 Village Nayagarh (Buffer Zone)	April-22	AVG	66.20	29.90	7.40	20.70	0.280
	May-22		65.40	29.60	7.30	20.50	0.277
	June-22		68.20	30.80	7.60	21.40	0.289
	July-22		56.80	25.70	6.40	17.80	0.240
	Aug-22		48.20	21.80	5.40	15.10	0.204
	Sept-22		40.50	18.30	4.50	12.70	0.171
	Oct-22		59.60	25.70	6.40	17.80	0.241
	Nov-22		61.50	27.80	6.90	19.30	0.260
	Dec-22		60.60	24.70	6.80	19.0	0.256
	Jan-23		61.10	27.60	6.80	19.20	0.258
	Feb-23		60.70	27.40	6.80	19.0	0.257
	March-23		58.60	26.50	6.60	18.40	0.248
AAQ-B1 Village Unchabali (Buffer Zone)	April-22	AVG	63.60	28.70	7.10	19.90	0.269
	May-22		62.90	28.40	7.0	19.70	0.266
	June-22		65.60	29.60	7.30	20.50	0.277
	July-22		54.60	24.70	6.10	17.10	0.231
	Aug-22		46.30	20.90	5.20	14.50	0.196
	Sept-22		38.90	17.6	4.40	12.20	0.165
	Oct-22		54.70	24.70	6.10	17.10	0.231
	Nov-22		58.50	26.40	6.50	18.30	0.247
	Dec-22		57.70	26.0	6.50	18.10	0.244
	Jan-23		58.20	26.30	6.50	18.20	0.246
	Feb-23		57.80	26.10	6.50	18.10	0.244
	March-23		55.80	25.20	6.20	17.50	0.236
Note – The monitoring and testing are carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.							
Monitoring is done through CAAQMS							
CAAQMS-C1 MINES ENTRY AND EXIT GATE	April-22	AVG	74.13	41.60	16.16	16.56	0.76
	May-22		62.47	40.48	36.25	21.67	0.12
	June-22		43.96	32.40	6.90	10.53	0.73
	July-22		40.38	13.19	6.80	19.58	0.13
	Aug-22		42.45	18.32	4.54	17.96	0.54
	Sept-22		50.30	21.83	3.0	18.33	0.77
	Oct-22		62.34	32.51	9.60	17.25	0.45
	Nov-22		78.62	42.68	8.24	16.85	0.14
	Dec-22		64.32	22.54	11.25	19.52	0.62
	Jan-23		57.25	54.23	14.27	15.15	0.51
	Feb-23		95.28	34.26	19.34	14.68	0.12
	March-23		79.52	21.48	6.45	17.91	0.16

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global1experts@gmail.com
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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC101012300000000 4P**
Report No.	:	**GTEEPL/01/23/SW/04A** Issue Date: 07.02.2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.01.2023 Date of Receiving: 11.01.2023
Date of Testing	:	12.01.2023 to 18.01.2023
Sampling Location	:	**Baitarani River Up Stream**
Identification of Sample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.51
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	111
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	71
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	19
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	38
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.1
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	1.7
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	48
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	26
12	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	24
13	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	.....	6.82
14	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	.....	2.19
15	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	12.7
16	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	400(max)	11.6
17	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.21
18	Nitrate as NO3	mg/l	APHA 23rd Ed(4500-NO_3-B): 2017	50(max)	4.6
19	Ammo. Nitrogen as (NH3-N)	mg/l	IS 3025(Part-34): 1988	.....	0.8
20	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.05
21	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.83
22	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01

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Report No: GTEEPL/01/23/SW/04A

23	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01
24	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	.....	<0.05
26	Dissolved Phosphate as(P)	mg/l	APHA 23rd Ed (4500 P- D)2017	.....	0.08
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.02
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	.....	<0.05
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.06
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	.....	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1.0(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	348

-END OF REPORT-

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

GLOBAL TECH ENVIRO EXPERTS PVT. LTD. BHUBANESWAR C-23, BJB NAGAR

N.B.:
1. The results relate to the sample received in respect to the Parameters tested.
2. Liability for return of sample ceases after 15 days from the date of Test certificate.
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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO : **TC1010123000000004P**
Report No. : **GTEEPL/01/23/SW/04B** Issue Date: 07.02.2023
Name of the Client : **UNCHABALI IRON & MANGANESE MINES**
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 10.01.2023 Date of Receiving: 11.01.2023
Date of Testing : 12.01.2023 to 18.01.2023
Sampling Location : **Baitarani River Down Stream**
Identification of Sample : **Surface Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	…..	IS 3025 (Part-11)1983 RA 2017	6.5 to 8.5	6.57
2	Odour	….	IS 3025 (Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025 (Part 4) 2021	300	10
4	Electrical Conductivity	µs/cm	IS 3025 (Part-14) :2021	…..	79
5	Total Dissolved solids	mg/l	IS 3025 (Part-16)1984 RA 2017	1500 (max)	56
6	Total Suspended Solids	mg/l	IS 3025 (Part-17):1984RA 2017	.....	23
7	Turbidity	NTU	IS 3025 (Part-10)1984 RA 2017	.....	34
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025 (Part-38)1989 RA 2019	4(min)	6.5
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025 (Part-44):1998	3(max)	1.4
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	44
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	22
12	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	20
13	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	.....	6.02
14	Magnesium as Mg	mg/l	APHA 23rd Ed (3500-Mg-B): 2017	.....	1.70
15	Chloride as Cl	mg/l	IS 3025 (Part-32)1988 RA 2019	600(max)	11.7
16	Sulphate as SO4	mg/l	IS 3025 (Part-24)1986 RA 2019	400(max)	12.8
17	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.14
18	Nitrate as NO3	mg/l	APHA 23rd Ed(4500-NO_3-B): 2017	50(max)	4.7
19	Amm.Nitrogen a (NH3-N)	mg/l	IS 3025 (Part-34): 1988	.....	0.7
20	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.05
21	Iron as Fe	mg/l	IS 3025 (Part-53)2003 RA 2019	50.0(max)	1.06
22	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01

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visit us: www.globaltechenvexpt.com

Report No: GTEEPL/01/23/SW/04B

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	.....	<0.05
26	Dissolved Phosphate (P)	mg/l	APHA 23rd Ed (4500 P- D)2017	.....	0.22
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	.....	<0.1
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.06
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	<0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	.....	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	566

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Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO : **TC1010123000000004P**
Report No. : **GTEEPL/01/23/SW/04C** Issue Date: 07.02.2023
Name of the Client : **UNCHABALI IRON & MANGANESE MINES**
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate,Civil Township, Rourkela, Odisha
Date of Sampling : 10.01.2023 Date of Receiving: 11.01.2023
Date of Testing : 12.01.2023 to 18.01.2023
Sampling Location : **Unchabali Nallah Up Stream**
Identification of ample : **Surface Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	…..	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.55
2	Odour	….	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	…..	408
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	260
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	…….	17
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	…….	33
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	5.6
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	2.0
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	…..	49
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	…..	114
12	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	……	47
13	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	….	29.67
14	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	……	9.72
15	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	18.3
16	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	400(max)	10.2
17	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.22
18	Nitrate as NO3	mg/l	APHA 23r Ed(4500-NO_3-B):2017	50(max)	5.8
19	Amm.Nitrogen a (NH3-N)	mg/l	IS 3025(Part-34): 1988	------	0.8
20	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.05
21	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.39
22	Hexavalent Chromium as Cr+6	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01

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Report No: GTEEPL/01/23/SW/04C

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05 (max)	<0.02
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23rdEd (4500 P- D) 2017	-----	0.18
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.01
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	<0.1
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.12
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	…	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	479

-END OF REPORT-

Authorised Signatory
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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO : **TC101012300000004P**
Report No. : **GTEEPL/01/23/SW/04D** Issue Date:07.02.2023
Name of the Client : **UNCHABALI IRON & MANGANESE MINES**
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 10.01.2023 Date of Receiving: 11.01.2023
Date of Testing : 12.01.2023 to 18.01.2023
Sampling Location : **Unchabali Nallah Down Stream**
Identification of Sample : **Surface Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	…..	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.72
2	Odour	….	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	10
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	…..	112
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	73
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	21
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	43
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	5.7
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	1.9
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	…..	41
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	…..	48
12	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	……	28
13	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	….	12.03
14	Magnesium as Mg	mg/l	APHA 23rd Ed(3500-Mg-B): 2017	……	4.37
15	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	20.3
16	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	400(max)	14.1
17	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.23
18	Nitrate as NO3	mg/l	APHA 23r Ed(4500-NO_3-B):2017	50(max)	4.8
19	Amm.Nitrogen a (NH3-N)	mg/l	IS 3025(Part-34): 1988	------	0.85
20	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.05
21	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.78
22	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01

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Report No: GTEEPL/01/23/SW/04D

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05 (max)	<0.01
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23rdEd (4500 P- D) 2017	-----	0.21
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	0.02
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	<0.1
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.14
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	...	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	497

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Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd.

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC1010123000000004P**
Report No.	:	**GTEEPL/01/23/SW/04E** Issue Date: 07.02.2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate,Civil Township, Rourkela, Odisha
Date of Sampling	:	10.01.2023 Date of Receiving: 11.01.2023
Date of Testing	:	12.01.2023 to 18.01.2023
Sampling Location	:	**Jalpa Nallah**
Identification of Sample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.95
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	10
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	101
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	1500 (max)	69
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984RA 2017	.....	22
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	.....	42
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.1
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	1.4
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	47
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	22
12	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	24
13	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	.....	6.4
14	Magnesium as Mg	mg/l	APHA 23rd Ed (3500-Mg-B): 2017	.....	1.46
15	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	16.2
16	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	400(max)	8.8
17	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.25
18	Nitrate as NO3	mg/l	APHA 23rd Ed.(4500-NO_3-B): 2017	50(max)	6.4
19	Amm.Nitrogen a (NH3-N)	mg/l	IS 3025(Part-34): 1988	.....	0.8
20	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.05
21	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.25
22	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01

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Report No: GTEEPL/01/23/SW/04E

23	Total Chromium	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.01
24	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.005 (max)	<0.001
25	Sulphide as H2S	mg/l	IS 3025(Part-29)1986 RA 2019	----	<0.05
26	Dissolved Phosphate as (P)	mg/l	APHA 23RD Ed (4500 P- D) 2017	-----	0.10
27	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
28	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.05(max)	<0.01
29	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	1.5(max)	<0.02
30	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	----	0.05
31	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.1(max)	<0.01
32	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.05(max)	<0.001
33	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02	<0.01
34	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	15(max)	0.05
35	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.01(max)	0.001
36	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	----	<0.001
37	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	1.0(max)	<0.2
Bacteriological Quality					
38	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	5000(max)	425

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Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd.

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO	:	**TC1010123000000004P**
Report No.	:	**GTEEPL/01/23/SW/04F** Issue Date: 07.02.2023
Name of the Client	:	**UNCHABALI IRON & MANGANESE MINES**
Address	:	(Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling	:	10.01.2023 Date of Receiving: 11.01.2023
Date of Testing	:	12.01.2023 to 18.01.2023
Sampling Location	:	**Kashi Nallah**
Identification of Sample	:	**Surface Water**
Quantity of Sample	:	1LTR X 2
Sampling procedure	:	GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Standards as per IS-2296 Class-'C'	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025 (Part-11)1983 RA 2017	6.5 to 8.5	6.59
2	Odour	....	IS 3025(Part 5) 2018	Unobjectionable	Unobjectionable
3	Colour	Hazen	IS 3025(Part 4) 2021	300	5
4	Specific Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	114
5	Total Dissolved solids	mg/l	IS 3025 (Part-16)1984 RA 2017	1500 (max)	74
6	Total Suspended Solids	mg/l	IS 3025 (Part-17):1984RA 2017	.....	16
7	Turbidity	NTU	IS 3025 (Part-10)1984 RA 2017	.....	34
Chemical Parameters					
8	Dissolved Oxygen	mg/l	IS 3025(Part-38)1989 RA 2019	4(min)	6.2
9	Biochemical Oxygen Demand (for 3 days 27 ^{0}C)	mg/l	IS 3025(Part-44):1998	3(max)	1.8
10	Chemical oxygen Demand	mg/l	APHA 23rd Ed.(5220-D): 2017	.....	53
11	Total Hardness as CaCo3	mg/l	IS 3025(Part-21)2009 RA 2019	.....	46
12	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	.....	38
13	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	....	13.63
14	Magnesium as Mg	mg/l	APHA 23rd Ed (3500-Mg-B): 2017	.....	2.92
15	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	600(max)	15.2
16	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	400(max)	12.8
17	Fluoride as F	mg/l	APHA 23rd Ed.(4500-F-D):2017	1.5(max)	0.24
18	Nitrate as NO3	mg/l	APHA 23rd Ed.(4500-NO_3-B): 2017	50(max)	6.6
19	Amm. Nitrogen a (NH3-N)	mg/l	IS 3025(Part-34): 1988	------	11
20	Oil & Grease	mg/l	APHA 23rd Ed.(5520-B): 2017	0.1(max)	<0.05
21	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	50.0(max)	0.19
22	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	0.05(max)	<0.01

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GTEEPL/LQR/56

TEST REPORT

TC-10101

NABL ULR NO : **TC1010123000000021P**
Report No. : **GTEEPL/02/22/GW/21K** Issue Date: 07.03.2023
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 14.02.2023 Date of Receiving: 15.02.2023
Date of Testing : 16.02.2023 To 22.02.2023
Sampling Location : **ML Area**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	5.95
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	290
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	164
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	128
9	Calcium Hardness as $CaCO_3$	mg/l	IS 3025(Part-40)1991 RA 2019	---	70
10	MagnesiumHardness as $CaCO_3$	mg/l	IS 3025(Part-46)1994 RA 2003	-----	58
11	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	36
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	28.1
13	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	14.09
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	10
15	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	5.61
16	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.14
17	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	0.28
18	Total Ammonia	mg/l	IS 3025(Part-34)1988RA2019	0.5(max)	<0.3
19	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
20	Iron as Fe	mg/l	IS 3025(Part-53)2003 RA 2019	1.0(max)	0.01
21	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01

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Report No: GTEEPL/02/23/GW/21K

22	Phosphate as PO_4	mg/l	APHA 23rd Ed (4500-P-D): 2017	----	<0.1
23	Silica	mg/l	APHA 23rd Ed (4500-SiO_2-C): 2017	-----	<0.4
24	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	15.5
25	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	4.2
26	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
27	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
28	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
29	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
30	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
31	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
32	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
33	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
34	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	<0.05
35	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
36	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
37	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
38	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	<0.05
39	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
40	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
41	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
42	Total Coliform Bacteria	MPN/100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

-END OF REPORT-

Authorised Signatory
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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO : **TC101012300000021P**
Report No. : **GTEEPL/02/22/GW/21L** Issue Date: 07.03.20231
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 14.02.2023 Date of Receiving: 15.02.2023
Date of Testing : 16.02.2023 To 22.02.2023
Sampling Location : **Unchabali Village**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.34
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	250
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	138
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	96
9	Calcium Hardness as $CaCO_3$	mg/l	IS 3025(Part-40)1991 RA 2019	---	62
10	Magnesium Hardness as $CaCO_3$	mg/l	IS 3025(Part-46)1994 RA 2003	----	34
11	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	46
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	24.8
13	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	8.26
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	7.0
15	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	4.89
16	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.14
17	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	0.27
18	Total Ammonia	mg/l	IS 3025(Part-34)1988 RA 2019	0.5(max)	<0.1
19	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
20	Iron as Fe	mg/l	IS 3025(Part-53) 2003 RA 2019	1.0(max)	0.01
21	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01

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Report No: GTEEPL/02/22/GW/21L

22	Phosphate as PO_4	mg/l	APHA 23rd Ed (4500-P-D): 2017	----	<0.1
23	Silica	mg/l	APHA 23rd Ed (4500-SiO_2-C): 2017	-----	<0.4
24	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	21.8
25	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	6.2
26	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
27	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
28	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
29	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
30	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.1
31	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
32	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
33	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
34	Manganese	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	0.05
35	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
36	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
37	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
38	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.12
39	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	0.001
40	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
41	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
42	Total Coliform Bacteria	MPN/100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	<2

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Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO : **TC101012300000021P**
Report No. : **GTEEPL/02/22/GW/21M** Issue Date: 07.03.2023
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 14.02.2023 Date of Receiving: 15.02.2023
Date of Testing : 16.02.2023 To 22.02.2023
Sampling Location : **Balda Village**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	5.92
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	292
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	166
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	104
9	Calcium Hardness as $CaCO_3$	mg/l	IS 3025(Part-40)1991 RA 2019	---	68
10	Magnesium Hardness as $CaCO_3$	mg/l	IS 3025(Part-46)1994 RA 2003	----	36
11	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	112
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	27.3
13	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	8.75
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	11
15	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	5.12
16	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.07
17	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	0.25
18	Total Ammonia	mg/l	IS 3025(Part-34)1988 RA 2019	0.5(max)	<0.1
19	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
20	Iron as Fe	mg/l	IS 3025(Part-53) 2003 RA 2019	1.0(max)	0.01
21	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01

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Report No: GTEEPL/02/23/GW/21M

22	Phosphate as PO_4	mg/l	APHA 23rd Ed (4500-P-D): 2017	----	<0.1
23	Silica	mg/l	APHA 23rd Ed (4500-SiO_2-C): 2017	-----	<0.4
24	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	16.4
25	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	5.1
26	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
27	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
28	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
29	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
30	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
31	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
32	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
33	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
34	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	<0.05
35	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
36	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
37	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
38	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	<0.05
39	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
40	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
41	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
42	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO : **TC101012300000021P**
Report No. : **GTEEPL/02/22/GW/21N** Issue Date: 07.03.2023
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 14.02.2023 Date of Receiving: 15.02.2023
Date of Testing : 16.02.2023 To 22.02.2023
Sampling Location : **Nayagarh Village**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.32
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	252
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	146
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	108
9	Calcium Hardness as $CaCO_3$	mg/l	IS 3025(Part-40)1991 RA 2019	---	60
10	Magnesium Hardness as $CaCO_3$	mg/l	IS 3025(Part-46)1994 RA 2003	-----	48
11	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	104
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	24.0
13	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	11.66
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	6.0
15	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	4.77
16	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.11
17	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	0.29
18	Total Ammonia	mg/l	IS 3025(Part-34)1988 RA 2019	0.5(max)	<0.1
20	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
21	Iron as Fe	mg/l	IS 3025(Part-53) 2003 RA 2019	1.0(max)	0.02
22	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01

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Report No: GTEEPL/02/23/GW/21N

22	Phosphate as PO_4	mg/l	APHA 23rd Ed (4500-P-D): 2017	----	<0.1
23	Silica	mg/l	APHA 23rd Ed (4500-SiO_2-C): 2017	-----	<0.4
24	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	12.08
25	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	3.1
26	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
27	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
28	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
29	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
30	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
31	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
32	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
33	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
34	Manganese	mg/l	IS 3025(Part-34)1988 RA 2003	0.1(max)	<0.05
35	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
36	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
37	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
38	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	< 0.05
39	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	0.001
40	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
41	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
42	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO : **TC101012200000021P**
Report No. : **GTEEPL/02/23/GW/21O** Issue Date: 07.03.2023
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. IndraniPattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 14.02.2023 Date of Receiving: 15.02.2023
Date of Testing : 16.02.2023 To 22.02.2023
Sampling Location : **Kalimatti Village**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	.....	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	5.81
2	Odour	....	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	.....	257
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	147
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	.....	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<0.05
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	98
9	Calcium Hardness as $CaCO_3$	mg/l	IS 3025(Part-40)1991 RA 2019	---	64
10	Magnesium Hardness as $CaCO_3$	mg/l	IS 3025(Part-46)1994 RA 2003	----	34
11	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	110
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	25.7
13	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	8.26
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	10
15	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	4.23
16	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.09
17	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	0.27
18	Total Ammonia	mg/l	IS 3025(Part-34)1988 RA 2019	0.5(max)	<0.1
19	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
20	Iron as Fe	mg/l	IS 3025(Part-53) 2003 RA 2019	1.0(max)	0.15
21	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01

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Report No: GTEEPL/02/23/GW/21O

22	Phosphate as PO_4	mg/l	APHA 23rd Ed (4500-P-D): 2017	----	<0.1
23	Silica	mg/l	APHA 23rd Ed (4500-SiO_2-C): 2017	-----	<0.2
24	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	14.2
25	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	6.1
26	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
27	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
28	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
29	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
30	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.05
31	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
32	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
33	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
34	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	<0.05
35	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
36	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
37	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
38	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.05
39	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	0.001
40	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
41	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
42	Total Coliform Bacteria	MPN/100 ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

-END OF REPORT-

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

GLOBAL TECH ENVIRO EXPERTS PVT. LTD. BHUBANESWAR C-23,BJB NAGAR

N.B.:
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TC-10101

GTEEPL/LQR/56

TEST REPORT

NABL ULR NO : **TC101012200000229P**
Report No. : **GTEEPL/02/22/GW/21P** Issue Date: 07.03.2022
Name of the Client : UNCHABALI IRON & MANGANESE MINES
Address : (Smt. Indrani Pattnaik), A/6, Commercial Estate, Civil Township, Rourkela, Odisha
Date of Sampling : 14.02.2023 Date of Receiving: 15.02.2023
Date of Testing : 16.02.2023 To 22.02.2023
Sampling Location : **Employee Camp**
Identification of Sample : **Ground Water**
Quantity of Sample : 1LTR X 2
Sampling procedure : GTEEPL/LSOP/09

Sl. No.	Parameters	Unit	Testing Method	Requirement as per IS 10500:2012RA 2018	Analysis Result
Physical Parameters					
1	pH	…..	IS 3025(Part-11)1983 RA 2017	6.5 to 8.5	6.51
2	Odour	….	IS 3025(Part 5) 2018	Agreeable	Agreeable
3	Colour	Hazen	IS 3025(Part 4) 2021	5(max)	<1.0
4	Electrical Conductivity	µs/cm	IS 3025(Part-14) :2021	…..	260
5	Total Dissolved solids	mg/l	IS 3025(Part-16)1984 RA 2017	500 (max)	148
6	Total Suspended Solids	mg/l	IS 3025(Part-17):1984 RA 2017	…….	<1.0
7	Turbidity	NTU	IS 3025(Part-10)1984 RA 2017	1.0(max)	<1.0
Chemical Parameters					
8	Total Hardness as $CaCo_3$	mg/l	IS 3025(Part-21)2009 RA 2019	200(max)	110
9	Calcium Hardness as $CaCO_3$	mg/l	IS 3025(Part-40)1991 RA 2019	---	66
10	Magnesium Hardness as $CaCO_3$	mg/l	IS 3025(Part-46)1994 RA 2003	----	44
11	Total Alkalinity as CaCo3	mg/l	IS 3025(Part-23) 1986 RA 2019	200(max)	100
12	Calcium as Ca	mg/l	IS 3025 (Part-40) 1991 RA 2019	75(max)	26.5
13	Magnesium as Mg	mg/l	APHA 3500Mg B	30(max)	10.69
14	Chloride as Cl	mg/l	IS 3025(Part-32)1988 RA 2019	250(max)	11
15	Sulphate as SO4	mg/l	IS 3025(Part-24)1986 RA 2019	200(max)	5.27
16	Fluoride as F	mg/l	APHA F 4500 C-D	1.0(max)	0.10
17	Nitrate as NO3	mg/l	APHA 4500 NO3-B	45(max)	0.29
18	Total Ammonia	mg/l	IS 3025(Part-34)1988 RA 2019	0.5(max)	<0.1
19	Mineral Oil	mg/l	IS 3025(Part-39) 2021	0.5(max)	<0.4
20	Iron as Fe	mg/l	IS 3025(Part-53) 2003 RA 2019	1.0(max)	0.18
21	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part-52)2003 RA 2019	----	<0.01

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Report No: GTEEPL/02/23/GW/21P

22	Phosphate as PO_4	mg/l	APHA 23rd Ed (4500-P-D): 2017	----	<0.1
23	Silica	mg/l	APHA 23rd Ed (4500-SiO_2-C): 2017	-----	<0.4
24	Sodium as Na	mg/l	IS 3025: (Part-45) 1993 RA 2019	-----	15.8
25	Potassium as K	mg/l	IS 3025: (Part-45) 1993 RA 2019	-------	4.3
26	Total Chromium as	mg/l	IS 3025(Part-52) 2003 RA 2009	0.05(max)	<0.02
27	Phenolic Compounds as C_6H_5OH	mg/l	IS 3025(Part-43)1992 RA 2019	0.001 (max)	<0.001
28	Sulphide as H_2S	mg/l	IS 3025(Part-29)1986 RA 2019	0.05(max)	<0.05
29	Aluminium as Al	mg/l	IS 3025(Part-55)2003 RA 2019	0.03 (max)	<0.02
30	Boron as B	mg/l	IS 3025(Part-57)2005 RA 2017	0.5 (max)	<0.1
31	Cyanide as CN	mg/l	IS 3025(Part-27)1986 RA 2019	0.05(max.)	<0.01
32	Arsenic as As	mg/l	IS 3025(Part-37)1988 RA 2019	0.01(max)	<0.01
33	Copper as Cu	mg/l	IS 3025(Part-42)1992 RA 2019	0.05(max)	<0.01
34	Manganese as Mn	mg/l	IS 3025(Part-59)2006 RA 2017	0.1(max)	<0.05
35	Lead as Pb	mg/l	IS 3025(Part-47)1994 RA 2019	0.01(max)	<0.01
36	Selenium as Se	mg/l	IS 3025(Part-56)2003 RA 2019	0.01(max)	<0.001
37	Nickel	mg/l	IS 3025(Part-54)2003 RA 2019	0.02(max)	<0.01
38	Zinc as Zn	mg/l	IS 3025(Part-49)1994 RA 2019	5 (max)	0.08
39	Cadmium as Cd	mg/l	IS 3025(Part-41)1992 RA 2019	0.003(max)	<0.001
40	Mercury as Hg	mg/l	IS 3025(Part 48) 1994 RA 2009	0.001(max)	<0.001
41	Anionic detergent as MBAS	mg/l	Annex K of IS 13428	0.2(max)	<0.2
Bacteriological Quality					
42	Total Coliform Bacteria	MPN/ 100ml	IS 1622:1981 RA 2019	Shall not be detected in any 100 ml sample	< 2

-END OF REPORT-

Authorised Signatory
Global Tech Enviro Experts Pvt. Ltd

GLOBAL TECH ENVIRO EXPERTS PVT. LTD. BHUBANESWAR C-23,BJB NAGAR

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Annexure - 10

INDRANI PATNAIK

(MINES OWNER)
A/6, COMMERCIAL ESTATE, CIVIL TOWNSHIP, ROURKELA - 769 004
Phone : 0661-2400139, 2400014, FAX : 0661-2402226

Ref.No.: UIMM/IP/ENV/APR/23/02 **DATE:** 17.04.2023

To
The Member Secretary,
State Pollution Control Board, Orissa,
118/A, Nilakanthanagar, Unit – VIII,
Bhubaneswar – 751012

Subject: Submission of annual statement for plantation in respect of Unchabali Iron & Mn. Mine of Smt. Indrani Patnaik under Specific condition no-34 of approved consent order.

Reference: Specific Condition -34 in approved Consent order No. 4757/IND-I-CON-6035 dated on 23.03.2021.

Respected Sir,

With reference to the above cited subject and reference to the above specific condition no, we are hereby submitting "The annual statements pertaining to the number of trees planted areas where plantation has been done, survival percentage and area in Hector covered under plantation" in prescribed format as **Appendix -1** in respect of Unchabali iron & Mn. Mine of Smt. Indrani Patnaik for period of **April 2022 to March 2023.**

Thanking you,

For **Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik**

Mines Manager 17/4/23

Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik

Enclosed: Appendix-I Mahaparvat

Copy to: The Regional Officer, SPCB, Orissa, Collage Road, Dist.- Keonjhar, and Orissa.

Appendix - 1

UNCHABALI IRON & MN. MINES OF SMT. INDRANI PATNAIK

PLANTATION ANNUAL STATEMENT FOR THE YEAR 2022-2023

Sl. No	Mines Name	ML Area In Ha.	Period	Within ML			Out Side ML			Avenue Plantation			Total	
				No of Trees Planted	Area in Ha	Survival rate	No of Trees Planted	Area in Ha	Survival rate	No of Trees Planted	Area in RKM	Survival rate	No of Trees Planted	Survival rate
1	Unchabali Iron & Mn Mines, Smt. Indrani Patnaik	106.1127 Ha.	2022-2023	6500	1.17	90%	0	0.0 Ha	-	-	-	-	5850	90%

Note : Within ML area plantation was carried out in Safety zone, Nallah Gap Plantation and dump area.

Apart from above we have distributed 500 No. of Saplings to local villagers.

Special Condition – 34

Plantation of trees shall be undertaken in the colony township, over top soil dumps, OB dumps, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation in nearby village areas in consultation with DFO / Horticulture department. The plantation details shall be submitted to the board by 30th April every Year.

GOVERNMENT OF INDIA

MINISTRY OF MINES, New Delhi

G12847132021-2022

FORM G1

[See rule 45(5) (c)(i)]

For the financial year 1st April,2021 to 31st March,2022

ANNUAL RETURN

[To be used for minerals other than Copper, Gold, Lead, Pyrites, Tin, Tungsten, Zinc and precious and semi-precious stones]

To

(i) The Regional Controller of Mines
Indian Bureau of Mines
Bhubaneswar Region,
PIN : 751020
(Please address to Regional Controller of Mines in whose territorial jurisdiction the mines falls as notified from time to time by the Controller General,
Indian Bureau of Mines under rule 62 of the Mineral Conservation and Development Rules, 1988)

(ii) The State Government

PART - I (General)

1. Details of Mine :	
(a) Registration Number alloted by Indian Bureau of Mines (to give registration number of the Lessee-Owner)	IBM/5175/2011
(b) Mine Code (allotted by Indian Bureau of Mines)	30ORI08100
(c) Name of Mineral	Iron Ore
(d) Name of Mine	Indrani Patnaik
(e) Name(s) of Other Mineral(s) ,if any , produced from the same mine	Nil
2. Location of the Mine :	
Village	Unchabali
Post Office	SILJODA, VIA BAMEBARI
Tahsil - Taluk	Barbil
District	KEONJHAR
State	Odisha
PIN Code	758034
Fax no.:	E-mail: uimm.ip@gmail.com
Phone no.: 9437062184	Mobile :9437062184
3. Name and address of Lessee-Owner (along with fax no. and e-mail)	
Name of Lessee-Owner	Smt. Indrani Patnaik
Address	
Street/Village	A/, Commercial Estate, Civil town ship
District	Sundargarh
State	Odisha
PIN Code	769004
Fax no.:	E-Mail: uimm.ip@gmail.com
Phone no.: 9437040007	Mobile: 9437040007
4. Registered Office of Lessee	/6,Commercial Estate, Civil town ship, Rourkela 769004
5. Director in charge	NA
6. Agent	Shri Banshidhar Sahoo
7. Manager	Shri A.Gurubalasubramaniam
8. Mining Engineer In charge	Shri Y.R.Obalesh

9. Geologist in charge	Shri P Ayyanar		
10. Transferor (previous lessee), if any, and date of transfer	NA		
11. Particulars of area operated-Lease (Furnish information on items (i) to (vi) lease-wise in case mine workings cover more than one lease)			
(i)Lease number alloted by State Government	44		
(ii) Area under lease (hectares) :			
Under forest	103.43		
Outside forest	2.68		
Total	106.11		
(iii) Date of execution of mining lease deed	05 Feb 1999		
(iv) Period of lease	30		
(v) Area for which surface rights are held (hectares)			
Under forest	99.6		
Outside forest	2.66		
Total	102.26		
(vi) Date and period of renewal (if applicable)	04 Feb 2029		
(vi) In case there is more than one mine in the same lease area,indicate name of mine and mineral produced	Only one Mine(UIOM)		
12. Lease area (surface area) utilisation as at the end of year (hectares)	**Under forest**	**Outside forest**	**Total**
(i) Already exploited and abandoned by opencast (O-C) mining	0	0	0
(ii) Covered under current (O-C) workings	45.46	0	45.46
(iii) Reclaimed - rehabilitated	7.03	0	7.03
(iv) Used for waste disposal	19.09	0	19.09
(v) Occupied by plant, buildings, residential, welfare buildings & roads	3.53	2.68	6.21
(vi) Used for any other purpose (specify)	**Specification** / **Under Forest** / **Out Side Forest** / **Total** Sub Grade Dump / 0 / 0 / 0 Safety Zone Green Belt / 3.93 / 0.1 / 4.03		
(vii) Work done under progressive mine closure plan during the year	0	0	0
13. Ownership-exploiting Agency of mine: (Public Sector-Private Sector-Joint Sector)	Public Sector	Private Sector	Joint Sector
	NA	Private Sector	NA

Part-II (Employment and Wages)

1. Number of supervisory staff employed at the mine

Description	Wholly employed	Partly employed
1(i).Graduate Mining Engineer	20	0
(ii).Diploma Mining Engineer	9	0
(iii).Geologist	2	0
(iv).Surveyor	1	0
(v).Other Administrative,Clerical and technical supervisory staff	107	0
(vi).Total	139	0

2. (i) Number of days the mine worked :	357
(ii) No. of shifts per day :	4
(iii) Indicate reasons for work stoppage in the mine during the year (due to strike,lockout, heavy rain, non-availability of labour, transport bottleneck,lack of demand,uneconomic operations etc.) and the number of days of work stoppage for each ofthe factors separately.	Reasons / Number of days Heavy Rain,Others / 8
3. Employment and salary-wages paid#:	

Maximum number of persons employed on any one day during the year :
(i) In workings below ground on (date) -- (a) (number) --
(ii) In all in the mine on 30-Jan-2022 (a)(number) 773

Classification	Total number of man days worked during the year			No. of days worked during the year	Average daily number of persons employed			Total Wages- Salary for the year (Rs.)
	Direct	Contract	Total		Male	Female	Total	
(1)	2(A)	2(B)	2(C)	(3)	4(A)	4(B)	4(C)	(5)
Below Ground	0	0	0	0	0	0	0	0.00
Opencast	19435	0	19435	357	405	0	405	178985382.00
Above ground	735	0	735	357	19	0	19	9652362.00
Total:	20170	0	20170		424	0	424	188637744.00

To include all employees exclusive to the mine and attached factory,workshop or mineral dressing plant at the mine site

Part-IIA (Capital Structure)

1. Value of Fixed Assets* (Rs 429190822.00)
(in Respect to the mine, benefication plant, mine workshop, power and water installation)
In case this information is furnished as combined information in another mine's return please specify Mine code/Mine Name:

Description	At the begining of the year (Rs)	Additions during year (Rs)	Sold or discarded during year (Rs)	Depreciation during the year (Rs)	Net closing balance (Rs) (2+3)-(4+5)	Estimated market value** (Rs)
1	2	3	4	5	6	7
(i) Land***	0.00	0.00	0.00	0.00	0.00	0.00
(ii) Building :						
Industrial	0.00	0.00	0.00	0.00	0.00	0.00
Residential	0.00	0.00	0.00	0.00	0.00	0.00
(iii) Plant & machinery including transport equipment	461505457.00	43439100.00	0.00	75753735.00	429190822.00	0.00
(iv) Capitalised expenditure such as pre-production exploration, developement, major overhaul and repair to machinery etc. (As prescribed under Income Tax Act)	0.00	0.00	0.00	0.00	0.00	0.00
Total	461505457.00	43439100.00	0.00	75753735.00	429190822.00	0.00

*In case the fixed assets are common to more than one mine, furnish combined information for all such mines together in any one of the mine's return. In the returns for other mines, give only a cross reference to the particular mine's return where-in the information is included.

**Optional and may be furnished in respect of items (i), (ii) and (iii), if the mine owner desires.

***Including any non-recurring expenditure incurred on the acquisition of land.

2. Source of finance (at the end of the year)	
(i)Paid up share capital (Rs)	0.00
(ii)Own capital (Rs)	25019108947.85
(iii)Reserve and surplus (All Types) (Rs)	0
(iv)Long term loan outstanding (#) (Rs)	

Name of Institution/Source	Amount of Loan(Rs.)	Rate of Interest
NIL	0	0

(#) Indicate the names of the lending institutions such as State Finance Corporation, Industrial Developement and other Public Corporations, Co-operative Banks, Nationalised Banks and other sources along with the amount of loan from each source the rate of intrest at which loan has been taken.

3. Interest and Rent (Rs)	
(i) Interest paid during the year	0.00
(ii)Rents (excluding surface rent) paid during the year	48950.00

Part-III (Consumption of Materials)

1. Quantity and cost of material consumed during the year

Description	Unit	Quantity	Value(Rs)
(i) Fuel			
(a) Coal	Tonnes	0	0.00
(b) Diesel oil	Ltrs.	0	0.00
(c) Petrol	Ltrs.	0	0.00
(d) Kerosene	Ltrs.	0	0.00
(e) Gas	Cu.m	0	0.00
(ii) Lubricant			
(a) Lubricant oil	Ltrs.	0	0.00
(b) Grese	Kgs.	0	0.00
(iii) Electricity			
(a) Consumed	Kwh.	1181869	7682148.00
(b) Generated	Kwh.	0	0.00
(c) Sold	Kwh.	0	0.00
(iv) Explosives (furnish full details in Part IV)		789590.25	43723806.10
(v) Tyres	Nos.	0	0.00
(vi) Timber and supports		0	0.00
(vii) Drill road and kits	Nos.	0	0.00
(viii) Other spares and stores		0	0.00

2. Royalty, Rents and Payments made to DMF & NMET (Rs) :

	Paid for current year	Paid towards past arrears
(a)Royality	1586437989.000	429586247.000
(b)Dead Rent	424452.000	0.000
(c)Surface Rent	306828.000	0.000
(d)Payment made to DMF	475781506.000	129138072.000
(e)Payment made to NMET	31733231.000	8645975.000

3. Compensation paid for felling trees during the year Rs.	0.00
4. Depreciation on fixed assets RS.	75753735.00

5. Taxes and cesses

	Amount in Rupees paid during the year to:	
	Central Govt.	**State Govt.**
(i) Sales Tax	266333354.00	265500854.00
(ii) Welfare cess	0.00	0.00
(iii) Other taxes & cesses :-		
(a) Mineral cess	0.00	0.00
(b) Cess on dead rent	0.00	0.00
(c) Others (please specify)		

6. Other expenses (Rs.)	
(i) Overheads	41813447.00
(ii) Maintenance	1082202.00
(iii) Money value of other benefits paid to workmen	4936981.00
(iv) Payment made to professional agencies	9604390.00

Part-IV (Consumption of Explosives)

Licensed capacity of magazine:(specify unit separately in kg-tonne, numbers, metres)

Item	Unit	Capacity
Nitrate mixture	kg	1700
Cast Booster	kg	150
Safety fuse	mtr	1000
Detonating Fuse	mtr	5000
Detonators	nos	15000

Classification of Explosives	Unit	Quantity consumed during the year		Estimated requirement during the next year	
		Small dia.(upto 32mm)	Large dia.(above 32mm)	Small dia.(upto 32mm)	Large dia.(above 32mm)
Gun Powder	Kg.	0	0	0	0
Nitrate Mixture	Kg.	X	X	X	X
2. Nitrate Mixture a. Loose ammonium nitrate	Kg.	0	0	0	0
b. Ammonium nitrate in catridged form		0	112925	0	153000
3.Nitro compound	kg.	10283.25	0	3000	0
4. Liquid Oxygen soaked catridges	Kg.	0	0	0	0
5.Slurry explosives (Mention different trade name)	Kg.	0	0	0	0
6.Detonators	Nos	594	0	600	0
(i)Ordinary		594	0	600	0
(ii)Electrical		3018	0	3100	0
a.Ordinary		94	0	100	0
b.delay		2924	0	3000	0
7.Fuse	Mts	10440	0	12000	0
(a) Safety Fuse		1340	0	2000	0
(b)Detonation Fuse		9100	0	10000	0
8.Plastic ignition cord	Mts	0	0	0	0
9.Others (specify)	Nonels in Mtrs	271083	0	300000	0

Different sizes of soaked liquid oxygen catridges to be reported in equivalent kg. as per manufacturer's instruction.

Part V (General Geology & Mining)

(Items 2 and 3 to be submitted separately for each mineral)

1 Exploration

1(i) Exploration activities during the year:

		At the beginning of the year	During the year	Cumulative	Grid spacing-Dimension
Driling	No of holes	6	0.000	6	100 100
	Metrage	108	0.000	108	100 x 100
Pitting	No of pits	0	0.000	0	0
	Excavation(in m^3)	0	0.000	0	0
Trenching	No of trenches	0	0.000	0	0
	Excavation(in m^3)	0	0.000	0	0
	Length covered (in metre)	0	0.000	0	0
	Expenditure on exploration(Rs)	505630	0.000	505630	0
	1(ii) Any other exploration activity during	0	0.000	0	0

	the year:				

2. Reserves and Resources estimated (in tonnes)

Classification	Code	At the beginning of the year startfinancialyear	Assessed during the year	Depletion of reserves during the year	Balance resources as on dt lastfinancialyear
1	**2**	**3**	**4**	**5**	**6=(3+4-5)**
A.Mineral Reserve					
1.Proved Mineral Reserve	111	10029330.000	0	1625310.000	8404020
2.Probable Mineral Reserve	121	0.000	0	0	0
	122	0.000	0	0	0
Total Reserves		10029330.000	0	1625310.000	8404020
B.Remaining Resources					
1.Feasibility Mineral Resource	211	1807200.000	0	0	1807200
2.Prefeasibility Mineral Resource	221	0.000	0	0	0
	222	0.000	0	0	0
3.Measured Mineral Resource	331	0.000	0	0	0
4.Indicated Mineral Resource	332	0.000	0	0	0
5.Inferred Mineral Resource	333	0.000	0	0	0
6. Reconnaissance Mineral Resource	334	0.000	0	0	0
7. Total remaining Resorces		1807200.000	0	0	1807200
Total (A+B)		11836530.000	0	1625310.000	10211220

3. Subgrade-Mineral Reject (in tonnes)
(Information to be given in respect of mineral fractions generated and stacked-dumped below cut-off grade and above threshold value, if prescribed, having no immediate sale value)

Generation of subgrade-mineral reject (in tones)	At the beginning of the year	Generated during the year	Disposed during the year	Total Stacked at the end of the year	Average grade of the mineral reject generated
From unprocessed ore	0	0	0	0	0
From processed ore	352905.756	787140	1031609.084	108436.672	45

4.Overburden and Waste(in m^3)
(Information to be given in respect of overburden-waste and mineral fractions generated below threshold value, if prescribed)

At the beginning of the year	Generated during the year	Disposed in dumps during the year	Backfilled during the year	Total at the end of the year
2760736.8	2120460.000	1696368.000	0	4457105

5. Trees planted- survival rate

Description	Within lease area	Outside lease area
(i)Number of trees planted during the year	4700	0
(ii) Survival rate in percentage	85	0
(iii) Total no. of trees at the end of the year	49068	50185

6. Type of Machinery : Give the following information for the types of machinery in use such as hoist, fans, drills, loaders, excavators, dumpers, haulage, conveyors, pumps, etc.

Type of machinery	Capacity of each type of machinery	Unit (in which capacity is reported)	No. of machinery	Electrical- Non-electrical (specify)	Used in open Cast-Underground (specify)
Semi Mobile Crusher	200 TPH	0	1	Electrical	Opencast
Mobile Screen Plant	400 TPH	0	2	Dual power	Opencast
Excavator 470	3.5 Cu.m	0	5	Non Electrical	Opencast
Excavator PC 200	0.93 Cu.m	0	1	Non Electrical	Opencast

Loader-Volvo	4.5 Cu.m	0	1	Non Electrical	Opencast
Loader-SDLG	3.0 Cu.m	0	2	Non Electrical	Opencast
Volvo truck	30 Tons	0	19	Non Electrical	Opencast
Drilling	300 HP	0	1	Non Electrical	Opencast
Dozer	302HP	0	2	Non Electrical	Opencast
Rock Breaker	147.5HP	0	1	Non Electrical	Opencast
Weigh Bridge	60 Tons	0	1	Electrical	Opencast
Explosive Van	3.51 Tons	0	1	Non Electrical	Opencast
Miscellanceous water Diesel Tanker	(1-28 KL 3-12 KL)	0	6	Non Electrical	Opencast

(7)(i) Details of Mineral Treatment Plant, if any: Give a brief description of the process capacity of the machinery deployed and its availability. (Submit Flow Sheet and Material Balance of the Plant separately).

(ii) Furnish following information :

Item	Tonnage	Average grade
Feed	0.00	0.00
Concentrates	0.00	0.00
By-products/Co-products	0.00	0.00
Tailings	0.00	0.00

PART - VI(PRODUCTION,DESPATCHES AND STOCKS)
(To be submitted separately for each mineral)
(Unit of quantity in Tonnes)

1. Type of ore produced :
(Applicable for Iron ore only: tick mark whickever is applicable)
(a) Hematite ✓
(b) Magnetite

2. Production and Stocks of ROM ore at Mine-head

Category	Opening Stock	Production	Closing stock
(a) Opencast Workings	249690.000	1625310.000	0.000
(b) Underground Workings	0	0	0
(b) Dump workings	0.000	0.000	0.000

3. (i)Grade-wise ROM ore despatches from mine head ($) :

Grade of ROM	Despatches from mine-head	Ex-mine price (Rs)
Below 45% Fe ROM	0.000	0.00
45% to below 51% Fe ROM	0.000	0.00
Below 51%	0.000	0.00
51% to below 55%	0.000	0.00
55% to below 58%	0.000	0.00
58% to below 60%	0.000	0.00
60% to below 62%	0.000	0.00
62% to below 65%	0.000	0.00
65% and above	0.000	0.00
($)Applicable for iron ore and chromite only. For other minerals data of dispatches to be reported in 3(ii)		

3(ii) Grade-wise Production, Despatches, Stocks and Ex-mine prices:

Grade (% of fe content)	Opening stock at	Production	Despathches from	Closing stock at	PMV (Rs./MT)

	mine-head		mine-head	mine-head	
(i) Lumps :					
(a) Below 45% Fe (For Magnetite Ore only)	0.000	0.000	0.000	0.000	0.00
(b) 45% to below 51% Fe	0.000	0.000	0.000	0.000	0.00
(a) Below 51%	0.000	0.000	0.000	0.000	0.00
(b) 51% to below 55%	0.000	0.000	0.000	0.000	0.00
(c) Below 55%	0.000	0.000	0.000	0.000	0.00
(d) 55% to below 58%	0.000	0.000	0.000	0.000	0.00
(e) 58% to below 60%	55047.680	284070.000	328945.422	10172.258	5846.00
(f) 60% to below 62%	43137.390	97380.000	132896.030	7621.360	7222.00
(g) 62% to below 65%	798.142	0.000	0.000	798.142	0.00
(h) 65% and above	0.000	0.000	0.000	0.000	0.00
(ii) Fines :					
(a) Below 45% Fe (For Magnetite Ore only)	0.000	0.000	0.000	0.000	0.00
(b) 45% to below 51% Fe	0.000	0.000	0.000	0.000	0.00
(a) Below 51%	0.000	0.000	0.000	0.000	0.00
(b) 51% to below 55%	0.000	0.000	0.000	0.000	0.00
(c) Below 55%	222.651	235230.000	30796.220	3926.431	1029.00
(d) 55% to below 58%	352683.105	752640.000	1000812.864	104510.241	2663.00
(e) 58% to below 60%	0.000	15510.000	15377.970	132.030	2651.00
(f) 60% to below 62%	146555.000	936300.000	814279.078	23145.922	4719.00
(g) 62% to below 65%	19893.241	30.000	19890.122	33.119	5443.00
(h) 65% and above	0.000	0.000	0.000	0.000	0.00
(iii) Concentrates	3885.199	0.000	3885.090	0.109	3607.00
(iv) Calibrated Lump Ore (CLO) (Quantity already reported in Lumps should not be reported against CLO)					

3(iii).In case the mineral is being pulverized in own factory,Please give the following particulars
Not applicable for Iron ore,Manganeses ore,Bauxite and Chromite

3(iv).Average cost of pulverization amount per tonne
Not applicable for Iron ore,Manganeses ore,Bauxite and Chromite

4. Details of Deductions made from sale value for computation of Ex-mine price(Rs/Tonne)

Deduction claimed	Unit (in Rs/Tonne)	Remarks
(a) Cost of transportation (indicate loading station & Distance from mine in remarks)	0.00	PMV calculated excluding transportation rates
(b) Loading & Unloading charges	0.00	NA
(c) Railway frieght,if applicable (indicate destination & distance)	0.00	NA
(d) Port Handling chrges/export duty (indicate name of port)	0.00	NA
(e) Charges for Sampling & Analysis	0.00	NA
(f) Rent for the plot at Stocking yard	0.00	NA
(g) Other charges (specify crealy)	0.00	NA
Total (a) to (g)	0.00	

5. Sales/despatches effected for domestic purposes and for exports

Grade of ore	Nature of Despatch (indicate	For Domestic Consumption				For export		

	whether for Sale or Captive consumption or Export)	Registration number as allotted by the Indian Bureau of Mines to the buyer ##	Consignee	Quantity	Sale Value (Rs.)	Country	Quantity value	F.O.B. Value (Rs.)
55% to below 58% -Fines	Export-By Road to Rly sdg outside lease	30/ORI08069 - BUYER NAME : (CHINA)	MS TARINI MINERALS PRIVATE LIMITED	0.00	19263825.00	CHINA	7705.53	19263825.00
55% to below 58% -Fines	Export-By Road to Rly sdg outside lease	IBM/22940/2020	SEVEN HILLS MINERALS PRIVATE LIMITED	0.00	12320032.00	CHINA	3850.01	0.00
55% to below 58% -Fines	Export-Direct to Destination by Road	IBM/23122/2020 - BUYER NAME : (CHINA)	BS METALS AND ORES PRIVATE LIMITED	0.00	12716385.00	CHINA	3853.45	12716385.00
55% to below 58% -Fines	Export-Direct to Destination by Road	IBM/7815/2011 - BUYER NAME : (CHINA)	KASHVI POWER and STEEL PVT. LTD.	0.00	49223008.00	CHINA	15382.19	49223008.00
55% to below 58% -Fines	Export-Direct to Destination by Road	IBM/7815/2011	KASVI POWER and STEEL PVT. LTD.	0.00	46144140.00	CHINA	15381.38	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21157/2017 - BUYER NAME : (Neo Metaliks Ltd.-0	ANANYA ENTERPRISES.	7693.31	11155299.50	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	44379 - BUYER NAME : (ENVIROCARE INFRASOLUTION PRI	ENVIROCARE INFRASOLUTION PRIVATE LIMITED	7702.15	10397902.50	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (BRAVO SPONGE IRON P	GLOBAL MARKETING	7685.98	15756259.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	IBM/44560/2021 - BUYER NAME : (KIC Metaliks Ltd.-0	MERLIN MINERALS AND METALS PRIVATE LIMITED	19242.63	30672076.20	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	IBM/44560/2021 - BUYER NAME : (Neo Metaliks Ltd.-0	MERLIN MINERALS AND METALS PRIVATE LIMITED	7686.88	13564105.60	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	IBM/42972/2019 - BUYER NAME : (KIC Metaliks Ltd.-0	TORQUE MINERALS PRIVATE LIMITED	19259.54	27541142.20	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/1111/2020 - BUYER NAME : (SSAB ENERGY AND MINE	AGARMIN COAL WASHERY PRIVATE LIMITED	26938.94	45796192.90	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/20612/2016 - BUYER NAME : (SSAB ENERGY AND MIN	BADRINARAYAN COAL SUPPLIER	7667.72	25303476.00	INDIA	0.00	12698829.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	44379 - BUYER NAME : (ENVIROCARE INFRASOLUTION PRI	ENVIROCARE INFRASOLUTION PRIVATE LIMITED	5289.75	5289750.00	INDIA	0.00	0.00
55% to below 58%-	Domestic Sale-Direct	IBM/43975/2021 - BUYER NAME :	GLEANCORE MINERALS	7650.08	15300160.00	INDIA	0.00	0.00

SubGrade(Fines)	to Destination by Road	(SSAB ENERGY AND MIN	PRIVATE LIMITED					
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/22312/2018 - BUYER NAME : (SSAB ENERGY AND MIN	MEGHRAJ LOGISALES PRIVATE LIMITED	3848.98	12701634.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/4405/2011 - BUYER NAME : (ESL Steel Limited-07	ORISSA EXIM PVT.LTD	13983.38	23771746.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/23005/2020 - BUYER NAME : (Shyam Metalics and	SARVANI TRADELINK PRIVATE LIMITED	3845.67	5768505.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/42972/2019 - BUYER NAME : (ARYA IRON AND STEEL	TORQUE MINERALS PRIVATE LIMITED	23183.78	25502158.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/42972/2019 - BUYER NAME : (SSAB ENERGY AND MIN	TORQUE MINERALS PRIVATE LIMITED	10703.15	12375241.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Domestic Sale-Direct to Destination by Road	IBM/21197/2017 - BUYER NAME : (Ardent Steel Ltd.-0	TRANSTEK COAL AND MINERALS PRIVATE LIMITED	19251.97	33498561.00	INDIA	0.00	0.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/1165/2011	KAI INTERNATIONAL PRIVATE LIMITED	0.00	12331616.00	CHINA	3853.63	0.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/12291/2012 - BUYER NAME : (CHINA)	BAGADIYA BROTHERS (P) LTD	0.00	80428102.40	CHINA	38445.70	25373502.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/12291/2012 - BUYER NAME : (MALAYSIA)	BAGADIYA BROTHERS (P) LTD	0.00	0.00	MALAYSIA	3848.71	8524892.65
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/12291/2012 - BUYER NAME : (CHINA)	BAGADIYA BROTHERS PRIVATE LIMITED	0.00	38043258.00	CHINA	11528.26	38043258.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/12291/2012 - BUYER NAME : (CHINA)	Bagaidya Brothers Pvt. Ltd.	0.00	139828359.00	CHINA	42372.23	101760582.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/1165/2011 - BUYER NAME : (CHINA)	K A I INTERNATIONAL PVT LTD	0.00	25394325.00	CHINA	7695.25	25394325.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/1165/2011 - BUYER NAME : (CHINA)	KAI INTERNATIONAL PRIVATE LIMITED	0.00	37353398.00	CHINA	11552.67	12700182.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/7815/2011 - BUYER NAME : (CHINA)	KASVI POWER and STEEL PVT. LTD.	0.00	150589864.00	CHINA	42419.68	150589864.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	30/ORI08069 - BUYER NAME : (CHINA)	MS TARINI MINERALS PRIVATE LIMITED	0.00	57711300.00	CHINA	23084.52	57711300.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg	IBM/5262/2011	MS TARINI MINERALS PRIVATE LIMITED	0.00	57682680.00	CHINA	19227.56	0.00

	outside lease							
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/5262/2011 - BUYER NAME : (CHINA)	MS TARINI MINERALS PRIVATE LIMITED	0.00	227855234.00	CHINA	73129.12	135485984.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	NA	MS TARINI MINERALS PRIVATE LIMITED	0.00	11549100.00	CHINA	3849.70	0.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	NA - BUYER NAME : (CHINA)	MS TARINI MINERALS PRIVATE LIMITED	0.00	72386712.00	CHINA	23101.93	49294656.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/23057/2020 - BUYER NAME : (CHINA)	NARAYANI RESOURCES PRIVATE LIMIRED	0.00	25374294.00	CHINA	7689.18	25374294.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/23057/2020 - BUYER NAME : (CHINA)	NARAYANI RESOURCES PRIVATE LIMITED	0.00	12714933.00	CHINA	3853.01	12714933.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/16298/2013 - BUYER NAME : (CHINA)	PRAFUL ENTERPRISES PRIVATE LIMITED	0.00	0.00	CHINA	46166.48	62695569.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/22940/2020	SEVEN HILLS MINERALS PRIVATE LIMITED	0.00	24642496.00	CHINA	7700.78	0.00
55% to below 58%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/22940/2020 - BUYER NAME : (CHINA)	SEVEN HILLS MINERALS PRIVATE LIMITED	0.00	36902144.00	CHINA	11531.92	12306464.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/1165/2011	KAI INTERNATIONAL PRIVATE LIMITED	0.00	10719968.00	CHINA	3349.99	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/1165/2011 - BUYER NAME : (CHINA)	KAI INTERNATIONAL PRIVATE LIMITED	0.00	22634496.00	CHINA	7073.28	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/12291/2012	BAGADIYA BROTHERS PRIVATE LIMITED	0.00	5495490.00	CHINA	1998.36	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/23122/2020 - BUYER NAME : (CHINA)	BS METALS AND ORES PRIVATE LIMITED	0.00	25426566.00	CHINA	7705.02	25426566.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/1165/2011 - BUYER NAME : (CHINA)	KAI INTERNATIONAL PRIVATE LIMITED	0.00	62347627.00	CHINA	19243.01	25409835.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/7815/2011	KASHVI POWER and STEEL PVT. LTD.	0.00	11551620.00	CHINA	3850.54	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/7815/2011 - BUYER NAME : (CHINA)	KASHVI POWER and STEEL PVT. LTD.	0.00	145594500.00	CHINA	46098.85	61895672.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/7815/2011	KASVI POWER and STEEL PVT. LTD.	0.00	140739525.00	CHINA	46913.18	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/7815/2011 - BUYER NAME : (CHINA)	KASVI POWER and STEEL PVT. LTD.	0.00	278421870.00	CHINA	88448.08	129517214.00
55% to below 58%-SubGrade(Fines)	Export-Direct to	na - BUYER NAME : (CHINA)	MAHAKALESHWAR MINES AND	0.00	2349900.00	CHINA	783.30	0.00

	Destination by Road		MINERALS PVT LTD					
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/20586/2016 - BUYER NAME : (CHINA)	Ms LALL MINERALS PVT. LTD.	0.00	15206202.00	CHINA	4607.94	15206202.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/5262/2011	MS TARINI MINERALS PRIVATE LIMITED	0.00	46151910.00	CHINA	15383.97	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/5262/2011 - BUYER NAME : (CHINA)	MS TARINI MINERALS PRIVATE LIMITED	0.00	119820238.00	CHINA	38404.16	66363872.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	NA	MS TARINI MINERALS PRIVATE LIMITED	0.00	57691950.00	CHINA	19230.65	0.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	NA - BUYER NAME : (CHINA)	MS TARINI MINERALS PRIVATE LIMITED	0.00	153549472.00	CHINA	49900.23	61580512.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/23057/2020 - BUYER NAME : (CHINA)	NARAYANI RESOURCES PRIVATE LIMIRED	0.00	6800310.00	CHINA	2060.70	6800310.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/23057/2020 - BUYER NAME : (CHINA)	NARAYANI RESOURCES PRIVATE LIMITED	0.00	25382940.00	CHINA	7691.80	25382940.00
55% to below 58%-SubGrade(Fines)	Export-Direct to Destination by Road	IBM/23319/2021 - BUYER NAME : (CHINA)	RIKA GLOBAL IMPEX LIMITED	0.00	63402933.00	CHINA	19213.01	63402933.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/23065/2020 - BUYER NAME : (JAI BALAJI INDUSTRI	AGRAVANSHI STEELLS PVT LTD	3794.58	18213984.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/23065/2020 - BUYER NAME : (Trimula Industries	AGRAVANSHI STEELLS PVT LTD	3809.78	18286944.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21157/2017	ANANYA ENTERPRISES.	3793.14	19345014.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/11541/2012	BRAVO SPONGE IRON PVT LTD	22798.57	116272707.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/11541/2012 - BUYER NAME : (BRAVO SPONGE IRON P	BRAVO SPONGE IRON PVT LTD	18998.51	101642039.20	INDIA	0.00	60962340.50
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	44076 - BUYER NAME : (N.R. Ispat and Power Pvt. Lt	DNA MINERALS PVT LTD	3799.95	26599650.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017	GLOBAL MARKETING	3799.74	19378674.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (JAI BALAJI INDUSTRI	GLOBAL MARKETING	11411.40	51351300.00	INDIA	0.00	0.00

58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (JAI BALAJI INDUSTRI	GLOBAL MARKETING	22782.66	183980693.50	INDIA	0.00	95177057.50
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (Ms SKY ALLOYS AND	GLOBAL MARKETING	7615.96	38653067.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (SHREE RUPANADHAM ST	GLOBAL MARKETING	3806.26	17128170.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1192/2011	KALINGA ENTERPRISES (P) LIMITED	3789.74	18001265.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1192/2011 - BUYER NAME : (Electrosteel Casting	KALINGA ENTERPRISES (P) LIMITED	15201.72	106760191.00	INDIA	0.00	61824675.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1192/2011 - BUYER NAME : (Rajshri Iron Industr	KALINGA ENTERPRISES (P) LIMITED	3798.37	18042257.50	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1201/2011	Mahaprabhu Resources Private Limited	3800.41	18051948.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1201/2011 - BUYER NAME : (Rajshri Iron Industr	Mahaprabhu Resources Private Limited	3799.41	18047197.50	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5494/2011	Mangalam Metals and Ores Ltd	3791.43	19336293.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5494/2011 - BUYER NAME : (JAI BALAJI INDUSTRIE	Mangalam Metals and Ores Ltd	7566.15	38587365.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/4405/2011 - BUYER NAME : (SAVITRI SPONGE IRON	ORISSA EXIM PVT.LTD	3783.53	15323296.50	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/22863/2020 - BUYER NAME : (Electrosteel Castin	ORISSA FERROTECHS PRIVATE LIMITED	11492.53	78198214.50	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/4440/2011 - BUYER NAME : (Ramgarh Sponge Iron	Ramgarh Sponge Iron (P) Ltd.	7595.90	65326950.00	INDIA	0.00	31675975.50
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg	IBM/909/2011 - BUYER NAME : (Nilachal Iron and Pow	S.M. NIRYAT PRIVATE LIMITED	3789.20	30313600.00	INDIA	0.00	30313600.00

	outside lease							
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/4284/2011	SHAKAMBHARI ISPAT AND POWER LIMITED	15143.84	81019545.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/4284/2011 - BUYER NAME : (SHAKAMBHARI ISPAT AN	SHAKAMBHARI ISPAT AND POWER LIMITED	15189.88	81265858.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/4284/2011 - BUYER NAME : (SHAKAMBHARI ISPAT AN	SHAKAMBHARI ISPAT AND POWER LIMITED	7577.29	40538501.50	INDIA	0.00	40538501.50
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/10780/2012 - BUYER NAME : (Shivam Dhatu Udyog	Shivam Dhatu Udyog Pvt Ltd	3803.28	18065580.00	INDIA	0.00	18065580.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/13685/2012	Singhal Business Pvt Ltd	3798.69	15384695.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/43946/2021 - BUYER NAME : (JAI BALAJI INDUSTRI	SRI SHYAM TRADERS	11399.54	90437693.00	INDIA	0.00	30506160.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/43946/2021 - BUYER NAME : (SHREESATYA SPONGE A	SRI SHYAM TRADERS	15171.31	107688045.00	INDIA	0.00	78658590.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5262/2011 - BUYER NAME : (SHYAM STEEL INDUSTRI	Tarini Minerals Pvt Ltd	15117.21	55933677.00	INDIA	0.00	41863724.00
58% to below 60%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5262/2011 - BUYER NAME : (Shyam Steel Manufact	Tarini Minerals Pvt Ltd	7587.62	28074194.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	44076 - BUYER NAME : (MAA SAMLESWARI INDUSTRIES PR	DNA MINERALS PVT LTD	3278.12	22946840.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/21299/2017 - BUYER NAME : (MAA SAMLESWARI INDU	GLOBAL MARKETING	3806.26	23408499.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/21299/2017 - BUYER NAME : (SMRIDHI SPONGE LIMI	GLOBAL MARKETING	1296.73	5835285.00	INDIA	0.00	0.00
58% to below 60%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/909/2011 - BUYER NAME : (Nilachal Iron and Pow	S.M. NIRYAT PRIVATE LIMITED	3785.78	30286240.00	INDIA	0.00	30286240.00
58% to below 60%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/22940/2020 - BUYER NAME : (JAI MANGALA SPONGE	SEVEN HILLS MINERALS PRIVATE LIMITED	11380.56	96734760.00	INDIA	0.00	0.00
58% to below	Domestic	IBM/22940/2020	SEVEN HILLS	3797.57	32279345.00	INDIA	0.00	32279345.00

60%-Lumps(CLO)	Sale-Direct to Destination by Road	- BUYER NAME : (N.K. Bhojani (P) Lt	MINERALS PRIVATE LIMITED					
58% to below 60%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/1267/2011 - BUYER NAME : (Shiv Metalic Pvt. Lt	Shiv Metalic Pvt. Ltd.	31992.80	203952168.00	INDIA	0.00	0.00
58% to below 60%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/16298/2013 - BUYER NAME : (CHINA)	PRAFUL ENTERPRISES PRIVATE LIMITED	0.00	0.00	CHINA	15377.97	46133910.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/23065/2020 - BUYER NAME : (IND SYNERGY LIMITED	AGRAVANSHI STEELLS PVT LTD	3797.06	32275010.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/23065/2020 - BUYER NAME : (MARK STEELS LTD-012	AGRAVANSHI STEELLS PVT LTD	7603.32	45619920.00	INDIA	0.00	22820220.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/23065/2020 - BUYER NAME : (Ms SKY ALLOYS AND	AGRAVANSHI STEELLS PVT LTD	3799.95	22799700.00	INDIA	0.00	22799700.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017	GLOBAL MARKETING	3800.23	24131461.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (CHINTPURNI STEEL PR	GLOBAL MARKETING	3783.69	24026431.50	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (Ms SKY ALLOYS AND	GLOBAL MARKETING	7601.51	48269588.50	INDIA	0.00	24151399.50
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (NRVS Steels Ltd-093	GLOBAL MARKETING	7606.81	52867287.50	INDIA	0.00	24151844.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (S.A.IRON AND ALLOYS	GLOBAL MARKETING	3802.77	38027700.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/21299/2017 - BUYER NAME : (SHREE RUPANADHAM ST	GLOBAL MARKETING	3797.99	24117236.50	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1192/2011 - BUYER NAME : (Rajshri Iron Industr	KALINGA ENTERPRISES (P) LIMITED	3806.84	21698988.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/1192/2011 - BUYER NAME : (Shyam Steel Manufact	KALINGA ENTERPRISES (P) LIMITED	3783.25	22699500.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to	IBM/1201/2011	Mahaprabhu Resources Private Limited	3798.32	22789920.00	INDIA	0.00	0.00

	Rly sdg outside lease							
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5494/2011	Mangalam Metals and Ores Ltd	7596.64	48238665.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/4166/2011 - BUYER NAME : (N.R. Ispat and Power	N.R. Ispat and Power Pvt. Ltd.	3791.43	37156014.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5519/2011	NRVS Steels Ltd	3798.63	24121301.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/5519/2011 - BUYER NAME : (NRVS Steels Ltd-0930	NRVS Steels Ltd	26583.32	232032625.50	INDIA	0.00	39324307.50
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/10780/2012 - BUYER NAME : (Shivam Dhatu Udyog	Shivam Dhatu Udyog Pvt Ltd	11371.83	69554284.50	INDIA	0.00	45545760.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	406	SPS STEELS ROLLING MILLS LTD	3799.95	24129683.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-By Road to Rly sdg outside lease	IBM/43946/2021 - BUYER NAME : (MARK STEELS LTD-012	SRI SHYAM TRADERS	7558.19	71802805.00	INDIA	0.00	71802805.00
60% to below 62%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/23065/2020 - BUYER NAME : (K.J.S. Ahluwalia St	AGRAVANSHI STEELLS PVT LTD	7598.90	60806880.00	INDIA	0.00	60806880.00
60% to below 62%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/21299/2017 - BUYER NAME : (RB SPONGE IRON PVT.	GLOBAL MARKETING	1813.24	17497766.00	INDIA	0.00	0.00
60% to below 62%-Lumps(CLO)	Domestic Sale-Direct to Destination by Road	IBM/1267/2011 - BUYER NAME : (Shiv Metalic Pvt. Lt	Shiv Metalic Pvt. Ltd.	2002.16	20021600.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/5781/2011 - BUYER NAME : (SUPER SMELTERS LTD.-	AGRAVANSHI PRIVATE LIMITED	11529.73	57648650.00	INDIA	0.00	38394750.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/23065/2020 - BUYER NAME : (SUPER SMELTERS LTD.	AGRAVANSHI STEELLS PVT LTD	7614.32	38071600.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/11541/2012 - BUYER NAME : (BRAVO SPONGE IRON P	BRAVO SPONGE IRON PVT LTD	19242.20	70234030.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg	IBM/1192/2011 - BUYER NAME : (Electrosteel Casting	KALINGA ENTERPRISES (P) LIMITED	7705.78	27355519.00	INDIA	0.00	0.00

	outside lease							
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/22863/2020 - BUYER NAME : (Electrosteel Castin	ORISSA FERROTECHS PRIVATE LIMITED	15397.06	54275606.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011	ORISSA METALIKS PVT LTD [UNIT II]	11547.21	56003969.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011 - BUYER NAME : (ORISSA METALIKS PVT	ORISSA METALIKS PVT LTD [UNIT II]	19253.03	105712891.50	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011 - BUYER NAME : (ORISSA METALIKS PVT	ORISSA METALIKS PVT LTD [UNIT II]	11519.02	74297679.00	INDIA	0.00	74297679.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011	ORISSA METALIKS PVT. LTD.	30764.64	151511018.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011 - BUYER NAME : (ORISSA METALIKS PVT	ORISSA METALIKS PVT. LTD.	30728.94	175151833.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011 - BUYER NAME : (ORISSA METALIKS PVT	ORISSA METALIKS PVT. LTD.	153949.47	766668124.50	INDIA	0.00	220162938.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/240/2011 - BUYER NAME : (Shyam Metalics and En	Shyam Metalics and Energy Ltd	7687.31	50736246.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/240/2011 - BUYER NAME : (Shyam Metalics and En	Shyam Metalics and Energy Ltd	23080.20	152329320.00	INDIA	0.00	152329320.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/240/2011	Shyam Sel and Power Limited	3852.17	21764761.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/240/2011 - BUYER NAME : (Shyam Sel and Power L	Shyam Sel and Power Limited	119245.42	526899480.70	INDIA	0.00	86479453.70
60% to below 62%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/5262/2011 - BUYER NAME : (Shyam Sel and Power	Tarini Minerals Pvt Ltd	26945.51	107108402.25	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-Direct to Destination by Road	IBM/571/2011	ARCELOR MITTAL NIPPON STEEL INDIA LIMITED	70913.36	398781467.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-Direct to	IBM/571/2011 - BUYER NAME : (ARCELOR MITTAL NIPPON	ARCELOR MITTAL NIPPON STEEL INDIA LIMITED	7706.10	51014382.00	INDIA	0.00	0.00

	Destination by Road							
60% to below 62%-Screened Fines	Domestic Sale-Direct to Destination by Road	IBM/571/2011 - BUYER NAME : (ARCELOR MITTAL NIPPON	ARCELOR MITTAL NIPPON STEEL INDIA LIMITED	92323.66	611182629.10	INDIA	0.00	272228368.10
60% to below 62%-Screened Fines	Domestic Sale-Direct to Destination by Road	LALIT BHASKAR-IBM/23278/2021 - BUYER NAME : (M/S	ORES AND METALS PROP.	1073.95	6551095.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-Direct to Destination by Road	LALIT BHASKAR-IBM/23278/2021 - BUYER NAME : (M/S	ORES AND METALS PROP.	3930.17	23974037.00	INDIA	0.00	23974037.00
60% to below 62%-Screened Fines	Domestic Sale-Direct to Destination by Road	IBM/4360/2011 - BUYER NAME : (Ardent Steel Ltd.-08	SHARK MINES and MINERALS PVT. LTD.	5858.26	18453519.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Domestic Sale-Direct to Destination by Road	IBM/4360/2011 - BUYER NAME : (M/s Ardent Steel Ltd	SHARK MINES and MINERALS PVT. LTD.	15404.68	55073159.00	INDIA	0.00	0.00
60% to below 62%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/7815/2011	KASVI POWER and STEEL PVT. LTD.	0.00	61856370.00	CHINA	13745.86	0.00
60% to below 62%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/7815/2011 - BUYER NAME : (CHINA)	KASVI POWER and STEEL PVT. LTD.	0.00	111292290.00	CHINA	24731.62	69280605.00
60% to below 62%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/16298/2013 - BUYER NAME : (CHINA)	PRAFUL ENTERPRISES PRIVATE LIMITED	0.00	0.00	CHINA	34629.66	103888980.00
60% to below 62%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/909/2011	S. M. NIRYAT PVT. LTD.	0.00	173171880.00	CHINA	38482.64	0.00
60% to below 62%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/909/2011 - BUYER NAME : (CHINA)	S. M. NIRYAT PVT. LTD.	0.00	17340075.00	CHINA	3853.35	0.00
60% to below 62%-Screened Fines	Export-Direct to Destination by Road	IBM/7815/2011 - BUYER NAME : (CHINA)	KASVI POWER and STEEL PVT. LTD.	0.00	6489604.00	CHINA	1563.76	6489604.00
62% to below 65%-Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/240/2011 - BUYER NAME : (Shyam Sel and Power L	Shyam Sel and Power Limited	3731.20	21081291.30	INDIA	0.00	0.00
62% to below 65%-Screened Fines	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011 - BUYER NAME : (ORISSA METALIKS PVT	ORISSA METALIKS PVT LTD [UNIT II]	7691.19	49608175.50	INDIA	0.00	49608175.50
62% to below 65%-Screened Fines	Domestic Sale-Direct to Destination by Road	IBM/571/2011	ARCELOR MITTAL NIPPON STEEL INDIA LIMITED	5348.74	29738994.00	INDIA	0.00	0.00
62% to below 65%-Screened Fines	Export-By Road to Rly sdg outside lease	IBM/909/2011	S. M. NIRYAT PVT. LTD.	0.00	14035455.00	CHINA	3118.99	0.00
Below 55%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg	IBM/21157/2017 - BUYER NAME : (Neo Metaliks Ltd.-0	ANANYA ENTERPRISES.	3851.31	6354661.50	INDIA	0.00	0.00

	outside lease							
Below 55%-SubGrade(Fines)	Domestic Sale-By Road to Rly sdg outside lease	44379 - BUYER NAME : (ENVIROCARE INFRASOLUTION PRI	ENVIROCARE INFRASOLUTION PRIVATE LIMITED	15396.72	20785572.00	INDIA	0.00	0.00
Below 55%-SubGrade(Fines)	Export-By Road to Rly sdg outside lease	IBM/16298/2013 - BUYER NAME : (CHINA)	PRAFUL ENTERPRISES PRIVATE LIMITED	0.00	0.00	CHINA	11548.19	15012647.00
Concentrates	Domestic Sale-By Road to Rly sdg outside lease	IBM/4227/2011 - BUYER NAME : (ORISSA METALIKS PVT	ORISSA METALIKS PVT. LTD.	3885.09	15346105.50	INDIA	0.00	0.00

(^):To indicate the grades of ores as mentioned below(see @ and **)
##To indicate separately if more than one buyer.
NOTE :- Mine owner are required to substantiate domestic sale value/FOB value for each grade of ore quoted above with copy of in voices.

6. Give reasons for increase / decrease in production/nil production, if any,during the year compared to the previous year.

(a)	Production based on demand
(b)	NIL
(c)	NIL

7. Give reasons for increase/decrease in grade wise ex-mine price,if any,during the year compared to previous year.

(a)	Price varies according to market demand and supply ratio
(b)	NIL
(c)	NIL

PART VII: (COST OF PRODUCTION)
Cost of production per tonne of ore-mineral produced

Sl.No	Item	Cost per metric tonne (Rs.)
(i)	(i) Direct Cost :	
	(a) Exploration	0.00
	(b) Mining	708.10
	(c) Beneficiation (Mechanical only)	0.00
(ii)	Over-head cost	25.31
(iii)	Depreciation	46.03
(iv)	Interest	0.00
(v)	Royalty	960.13
(vi)	Payments made to DMF	287.95
(vii)	Payments made to NMET	19.21
(viii)	(viii) Taxes	2.89
(ix)	Dead Rent	0.19
(x)	Others (specify)	5.43
	Total	2055.24

Note: Information given under Part VII will be kept confidential. The Government, however, will be free to utilize the information for general studies without revealing the identity of the firm.

VERIFICATION

I certify that the information furnished above is correct and complete in all respect.

Place: Signature

Date:

Name in full:

INDRANI PATNAIK

(MINES OWNER)

A/6, COMMERCIAL ESTATE, CIVIL TOWNSHIP, ROURKELA - 769 004

Phone : 0661-2400139, 2400014, FAX : 0661-2402226

Annexure -12

REFERENCE: UIMM/IP/ENV/JULY/22/05 **DATE: 29.07.2022**

To
The Member Secretary
State Pollution Control Board, Orissa
Paribesh Bhawan, A/118
Nilakantha Nagar, Unit – VIII,
Bhubaneshwar – 751012

Subject: Environmental Statement of "Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik located in villages(s) Unchabali & Balda, Tehsil-Barbil, Dist: Keonjhar for the year 2021-2022.

Dear Sir,

With reference to the above subject, we are herewith submitting the Environmental Statement for the financial year 2021-2022 in the Form – V as per rule – 14 under Environment (Protection) Rules, 1986 in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

This is for your kind information, please.

Thanking You,

For **Unchabali Iron & Mn. Ore Mines of Smt. Indrani Patnaik**

29/7/22

Authorized Signatory

Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik
Mahaparvat

Encl: As Above

Copy to: The Regional Officer, SPCB, Regional Office, College Road, Dist: Keonjhar, Odisha.

[FORM-V]
(See Rule 14)
Environment Statement for the financial year ending the 31st March 2022

PART-A

(1)Name and address of the owner / Occupier of the industry,	-	Unchabali Iron & Mn. Ore Mines Smt. Indrani Patnaik
Operation or process	-	At- Unchabali, P.O: Bamebari Dist. Keonjhar, Orissa -758034. Email:ags@altradegroup.com Contact no: 9437062184
(2) Industry category Primary	-	(STC CODE) Secondary-(SIC Code)
(3)Production capacity Units	-	4.0 MTPA
(4)Year of establishment	-	20 May 2008 (year of commencement)
(5)Date of the last Environmental Statement Submitted	-	19.06.2021

PART-B

Water and Raw material Consumption:

(1)Water Consumption m^3/day	-	1175 m^3/ Day
Process	-	972 m^3/ Day
Cooling (Water sprinkling on Haul roads)	-	190 m^3/ Day
Domestic (Drinking purpose)	-	13 m^3/ Day

Name of Product	Process water consumption per unit of output
Sized Iron Ore	NA

	During the previous Financial year	during the current financial year
	(1)	(2)
(1)		
(2)		
(3)		

1. Substituted by rule 2 (b) of the environment (Protection) amendment rules, 1993 notified vide G.S.R vide G.S.R 3'6 (E) dated 22.04.1993.

(ii) Raw material consumption	-	Not applicable

Name of raw Material	Name of Products material	Consumption of raw per unit of out put
	During the previous Financial Year	during the current Financial year

*Industry may use codes if disclosing details or raw material would violate contractual obligations, otherwise all industries have to name the raw materials used.

PART-C

Pollution discharged to environment /unit of output - Not Applicable
(Parameter as specified in the consent issued)

A) Water:

(Parameter as specified in the consent issued)			
Pollutants	Quantity of Pollutants Discharged (Mass / day)	Conc. of Pollutants Discharged (Mass / Volume)	% of variation from prescribed standard with reasons
Water (ETP Discharge) 1 M^3/Day			
pH	NA	6.93	Within the Range
TSS	0.0632kg /day	39.80 mg/ lit	20.40 % below the norm
Oil & Grease	0.0004 kg /day	4.20 mg/ lit	95.80 % below the norm
Water (S.T.P Discharge) 10 M^3 / D			
pH	NA	7.26	Within the Range
T.S.S	0.1120 kg/day	11.20 mg/ lit	88.80 % below the norm
B.O.D	0.0596 kg/day	5.96 mg/ lit	80.13 % below the norm
Mines Surface runoff water Quality Report			
pH	NA	7.05	Within the Range
T.S.S	116.06 kg /day	24.0 mg/ lit	76.00 % below the norm
Oil & Grease	8.22 kg / day	1.70 mg/ lit	83.00 % below the norm

Air: Not Applicable

Note: Present there is no such trade effluent and source of emissions from current mines operation methodology.

PART – D
Hazardous Wastes

(As specified under Hazardous Waste/ Management and Handling Rules, 1986)

Hazardous waste [Waste Oil]	Total Quantity [KL]	
	During the previous Financial year	During the Current financial year
1) From process	NA	NA
2) From Pollution Control FACILITY	NA	NA
3) Used Oil	15.16 KL	33.30 KL
4) Oil contaminate waste	0.120 TON	0.110 TON

PATRT-E
Solid Waste

		Total Quantity	
		During the previous Financial year	during the current financial year
(a)From process:			
(Overburden and Intercalated Waste)	:	5132818(T)	4240920(T)
(b) From pollution control facility	:	NIL	Nil
(c) (1) Quantity recycled or re-utilized Within the unit	:	Nil	Nil
(2) Sold	:	Nil	Nil
(3) Disposed	:	Kept in within ML area	

PART-F

Please specify the characteristics (in terms of composition and quantum) of Hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

- The used oil generation is stored at an earmarked area and the same is disposed to authorized recycler in a proper manner.
- The used led batteries are kept at an earmarked area in a proper manner, which is later disposed to an authorized recycler through buy-back system.
- The generation of OB & Intercalated waste is dumped in earmarked area as per approved mining plan & scheme with following mitigate measures such as proper sloping, terracing, and toe retention wall & garland drainage. Further, to avoid the dump erosion surface area of the dump was muted with Plantation & Geo textile applications along with local grass seeds.

PART-G

Impact of the pollution abatement measures taken on conservation of natural re-sources and on the cost of the production

- The roof top rain water harvesting has been implemented at site employee's camp & Unchabali Village School in the direction of natural conservation of water resources.
- The massive plantation has been done at mines dump, safety zone and local villages.
- The top soil is stored in a proper manner and the same has been utilized for plantation and camp garden.
- Coir matting, retaining wall, garland drainage and check dam are provided to mines dump and soil erosion areas.
- Check dams & check wears are provided at the toe of the miens.

PART-H

Additional measures/investment proposal for environmental protection including abatement of pollution, prevention of pollution

- 2.5 KM automatic fixed sprinkler has been implemented for mines dispatch road dust suppression.
- Three no. of 25 KL capacity mobile water tanker has engaged for mines haul road dust suppression.
- Three numbers of 8 KL mobile water tanker have been engaged for village road dust suppression
- Effective dry fog system has been implemented in all the crusher and screen plant
- Rain water harvesting plant has been implemented at employees camp to increase the water table
- Rain water harvesting has been implemented at village Unchabali school to increase the water table
- Dust extraction and wetting process are being used for drilling process
- STP plant implemented at camp to treat the sewage water and the treated water is utilized for plantation & garden watering.
- ETP plant has been implemented at mines service center and the treated water is utilized for plantation and & garden watering.
- Plantation in safety zone, school area, camp areas and dump areas
- Coir matting and mixed grass application over dumps for better stabilization
- Check-dam for silt control in surface run-off from mines area.

PART-I

Any other particulars for improving the quality of the environment

1) Regular awareness program is given to the company employees, local villagers and school children towards environment and pollution.
2) The world environmental day, forest day, earth day, safety day & wild life week has being celebrated regularly along with school children's & company employee's , the celebration was followed through environmental awareness program.

PHOTOS: