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, 2020 TO SEPTEMBER, 2020

INDRANI PATNAIK

(MINES OWNER)

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

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

REFERENCE NO: UIMM/IP/ENV/NOV/2020/01 **DATE:** 18.11.2020

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 2020 to SEPTEMBER 2020** in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

Thanking you.

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

Mines Manager 18/11/20

Enclosed : As above & Compliance Copy with detailed analysis report and supporting photographs and monitoring data.

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

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 and one number of Iron ore beneficiation plant with capacity of 2.00 MTPA feed materials. 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 2019-2020, and the same is enclosed as **ANNEXURE-1.**
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 areas. 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**	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).

	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.	
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.**	There is no agricultural land within in the mine lease area. Therefore, the said diversion from state land use department is not applicable.
IV.	**The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below the ground water 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 ground water table and there is no proposal to intersect the ground water table as per the approved Scheme of Mining. The Project has carried out detailed hydrology and hydro geological study through and as per hydrology study report the ground water table exists at 478 aMSL and present mine working operation is at 520 AMSL. In case of ground water table intersection in future, the project will abide 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 mitigate measures should be taken to prevent pollution of the Baitarani river, in consultation with the State Pollution Control Board.**	No water course and / or water resources are being obstructed due to our mining operation. To ensure the same project has been under taken runoff management study and prepared site specific runoff management plan through KRG Rain Water Foundation, Chennai. Under the site specific runoff management plant, project has under taken various mitigate measure in and around the mine lease area. **Mines runoff management during monsoon period:** The mines runoff water is not allowed for direct discharge from 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 rain fall and technical design followed as per KRG rain water 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 mines premises. The implementations are follows. ✓ Nallah banks are protected by Guard wall with proper filtration arrangements to avoid entry of the any silt carry over to the water bodies during rainy season from other sources. ✓ Check weirs/check dams are conferred along the Nallah passing area to persuade silt sedimentations. ✓ Nallah de-siltation is under taken during pre-monsoon period to maintain its bio cycle. ✓ Nallah both side slopes are pitched with loose boulders to avoid the barrier erosion during monsoon period.

		Plantation and Vettiver plantation was carried out all along the Nallah boundaries and 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 of 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 / sub grade dump. **Retention wall:** Bottom of the OB dump and sub grade dump provided / constructed with adequate size of retention wall to avoid the dump failure during monsoon period. **Drainage Pattern:** Proper drainage pattern is provided at bottom of the waste / sub grade dumps and other required area to collect & treat the mines runoff water. **Coir-mat and plantation:** Surface area of the waste /sub grade dump is covered with plantation / coir geo textile application along with local grass seeds to avoid the dump erosion during monsoon period. The detailed implementation is given in **Table – 4.** **Photo evidence is given below as PHOTOS-1.**

VI.	**The top soil, if shall temporarily be stored at earmarked site(s) only and should not be kept unutilized for long, the topsoil should be used for land reclamation and plantation.**	No top soil 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 of top soil generation taken place in the future, it will be stored inane earmarked area and necessary safeguard measures will be under taken to preserve its nutrients 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 Ministry of Environment & Forest, Government of India vide letter no. J-11015/273/2009-IA.II (M) dated 31.05.2011 for setting up iron ore beneficiation plant for capacity of 2.0 MTPA (2 x 185 TPH). A copy of the Environmental Clearance obtained from MoEF&CC for undertaking beneficiation within lease area is enclosed as **ANNEXURE – 4.** However, the Beneficiation plant was dismantled due to; *"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."* The same got approved by Indian Bureau of Mines, Govt. of India in Mining plan. The letter of correspondence of the same is submitted at your good office through letter no. IP/MM/OCTOBER19/004 Dated. 03.10.2019. The letter is enclosed as **ANNEXURE – 9.**

VIII.	**The over burden (OB) generated during the mining operation shall be temporarily stacked at earmarked dump site(s) only for back filling. Back filling 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 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 six monthly basis.**	The generated over burden and / waste is stacked at earmarked dump site as per approved mining plan and no back filling and reclamation is being under taken till date. As per approved Scheme of Mining, the backfilling will commence in 2020-2021. So, the reclamation is countering on year 2020-21 in line to approved Scheme of Mining and reclamation will be carried out accordingly. However, the existing O.B dump is preserved with proper manner to the future reclamation. Such as like proper dozing, terracing, adequate slope, ditching and Plantation.
IX.	**Catch drains and siltation ponds of appropriate size should be constructed around the mine working 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 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 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**	The project has under taken varies Mitigate measures on the above. The detailed implementation is follows. **<u>Dump Management:</u>** **Dump Preparation:** Proper terracing, slope level and sub benches are maintained in all mines waste / sub grade dump. **Retention wall:** Bottom of the OB dump and sub grade dump provided / constructed with adequate size of retention wall to avoid the dump failure during monsoon period. **Drainage Pattern:** Proper drainage pattern is provided at bottom of the waste / sub grade dumps and other required area to collect & treat the mines runoff water. **Coir-mat and plantation:** Surface area of the waste /sub grade dump is covered with plantation / coir geo textile application along with local grass seeds to avoid the dump erosion during monsoon period.

	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 adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de - silted at regular intervals.	**Mines runoff management during monsoon period:** The mines runoff water is not allowed to direct discharge from 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 preplanned drainage pattern. All the implementations have been carried out with consideration of maximum rain fall and technical design is followed as per KRG rain water 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 mines premises. The implementations are follows. ✓ Nallah banks are protected by Guard wall with proper filtration arrangements to avoid entry of the any silt carry over to the water bodies during rainy season from other sources. ✓ Check weirs/check dams are conferred along the Nallah passing area to persuade silt sedimentations. ✓ Nallah de-siltation is under taken during pre-monsoon period to maintain its bio cycle.

		✓ Nallah both side slopes are pitched with loose boulders to avoid the barrier erosion during monsoon period. ✓ Plantation and Vettiver plantation was carried out all along the Nallah boundaries and few areas is converted as green barriers. **Water Harvesting:** The project have 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 on regular.
X.	**Dimension of the retaining wall at the toe of the temporary over burden dumps and OB benches within the mine to check run-off and siltation should be based on the rain fall data.**	Based on rain fall data, the retaining wall has been constructed at varies location like bottom of the OB dump, sub grade dump & other required area 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, back filled 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.** **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.**	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, back filled area and reclaimed area, mine benches, along the roads etc. However, during running mine operation project has carried Plantation at various location like 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 92953 numbers of saplings has been planted and the survival rate is 69%, on an average of 64136 species survived up to this reporting period. A comprised year wise plantation details are enclosed as **TABLE.-5A** and type of plants planted in the year was given in the

		TABLE- 5B. Photo evidence for the plantation inside and out lease area is given below. PHOTOS ARE GIVEN BELOW AS **PHOTOS-3**
XII.	**Effective safe guard 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 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 be implemented within first three months and their effectiveness shown with supporting data of actual air quality monitoring.**	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. ✓ 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 two no. of 25 KL mobile water tanker, which is 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. Detailed implementation is given in **table – 6**. **DUST SUPPRESSION IN CRUSHER & SCREEN PLANT:** Effective dry fog system is implemented in all the crusher and screen plants. To avoid the flow of air born dust from convey 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 buffer zone of the ML area, there are 3 no. of monitoring station in core zone i.e. Mines Entry and exit area, employees camp, beneficiation plant area and Eastern Site of ML 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 except monsoon season. The monitoring report for the period March 2020 to September 2020 reveals that the parameter like PM10, PM2.5, SO2 and NOx are well within the norms as per NAAQs notifications made by the CPCB. A comprised AAQ monitoring reports 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 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. Latest flow rate monitoring reports are enclosed as **TABLE-8.**
XIV.	**SPECIFIC CONDITION – 14 (4.00 MTPA)** **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 Ministry of Environment and Forest, its Regional Office, Bhubaneswar, the Central Ground Water Authority,**	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 covers a total of 41 parameters and results are very well within the norms. The data is being maintained and submitted to authorities regularly. Latest surface water quality report analysed during last monsoon is enclosed as **Annexure - 16.**

	the Regional Director, the Central Ground Water Board, the State Pollution Control Board and Central Pollution Control Board.	
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 project has engaged KRG RAIN WATER FOUNDATION, CHENNAI in consultation with Regional Director, CGWB and Bhubaneswar for technical guidelines and implemented various conservation measures to augment the ground water resources for in and around the mine lease area. The detail for the same is as follows; **ROOFTOP RAINWATER HARVESTING:** Rooftop rain water 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 rain water harvesting with consultation of 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 to in mines surrounding villages to encourage water 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 hydrology study the project has implemented five number of the check dams where soil is having high percolation rate and one number of 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 evidences are attached as PHOTOS-5**

XVI.	**Regular monitoring of ground water level and quality should be carried out in around the mine lease by establishing a network 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 ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.**	- **GROUND WATER QUALITY:** Ground water quality is being monitored regularly by seasonally at 10 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 ground water quality report is enclosed as **Annexure - 17.** - **GROUND WATER LEVEL:** The ground water level is being monitored by seasonally i.e. pre-monsoon, monsoon, post monsoon and winter. The latest ground water level report is given in **Table-09.** - - **INSTALLING NEW PIEZOMETER:** The project has installed Piezometers at mines observation bore wells. The ground water fluctuations are being observed in the bore well & results are recorded by regular intervals. The latest month piezometer observation data is given **as ANNEXURE -5.**
XVII.	**Appropriate mitigate measures should be taken to prevent pollution of the Baitarani river, the Jalpanadi and Jagdharanadi in consultation with the State Pollution Control Board.**	Site specific mitigation measures to prevent silt carried into nearby natural water bodies got implemented like; surface run off management structures, retaining wall followed garland drains, check dam, settling cum percolation ponds etc. Apart from that, guard wall 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 prior permission of the competent Authorities for drawl of requisite**	The project has obtained the ground water NOC from Central Ground Water Authority vide letter No.21-4(88YSER/GGWA/2008-

	quantity of water (surface water and ground water) required for the project.	1903 for withdrawal quantity of 1175 CUM/D of ground water. The obtained NOC from CGWA is enclosed as **ANNEXURE – 6.**
XIX.	**Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.**	- **ROOFTOP RAINWATER HARVESTING:** The project has implemented rooftop rain water harvesting system at project employee's camp and Unchabali Medical Center towards ground water re-charges. The technical design and other parameters are followed as recommended by KRG rain water harvesting with consultation of regional director, CGWB, Bhubaneswar. From this establishment 4200 CUM quantity of ground water is recharged to the ground water table every year. - **WATER HARVESTING PONDS AT VILLAGES:** The project has developed four numbers of water harvesting ponds to encourage the 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 hydrology study the project has implemented five number of the check dams, settling cum percolation pits where soil is having highly percolating rate and one number of percolation pond is provided at the south side of the broken up area. Details of check dams and check weirs are follows as **TABLE NO.-1**.
XX.	**Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles**	The project is ensuring vehicle emission monitoring for all mining and other supporting vehicles / equipment. The monitoring of vehicle emission is carried out

	used in mining operations and in transportation of mineral. 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.	through Diesel Smoke Meter by engaging THRIVENI Pollution Testing Centre, Unchabali Village, Keonjhar, Pin-758034. A sample HEMM emission test result is attached as **ANNEXURE-7.** Apart from testing of transporting vehicles emission on 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. Basically, the baseline data of the vehicle is being loaded in the initial entry of the vehicle to the mines and it is regularly monitored in every trip of entry in gate, if any vehicles are not having valid pollution certificate or any other parameters then automatically entry of the vehicle will be not allowed by system.
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 mitigate 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 is carried out only at day time. The control blasting is practiced using lager 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, DHANDBAD. As on date no records reveals beyond the permissible limit during the reporting period. A summarized report for the reporting period is enclosed as **TABLE NO.-10** and a sample report is enclosed as **ANNEXURE -8.**
XXII.	**Drills shall either be operated with dust extractors or equipped with water injection system.**	The drilling operation is being carried out with both dust extractor and water injection system. Presently the project is using DP 1100 drilling machine for drilling operation. The said drilling machine is inbuilt with both water injection system and dust extraction systems. The photo evidence for the same is given below. PHOTO evidences given below as **PHOTOS-6**
XXIII.	**Mineral handling plant should be provided with adequate number of**	1) Effective dry fog system is implemented in all the crusher and screen plants.

	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.	2) The conveyor belts of crusher and screen Plants are covered with hoods. 3) Regular water sprinkling is carried out in the loading and unloading area.
XXIV.	**Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and waste water generated during mining operation.**	STP is provided / implemented along with the skimmer mechanism at mines employee's camp for treatment and reuse of the waste domestic water from Kitchen, toilet and etc. The treated water is used for plantation and dust suppression activities. ETP is provided at mines work shop for the treatment of waste water from water service of equipment. The existing ETP is having physical separation of oil and grease by oil trapping system and silt sedimentation pit. The both STP and ETP final discharge water is being monitored on fortnightly once to ensure the final discharge water in line to approved CTO and record maintained for the same. The latest monitoring report is enclosed here as **Table. No – 11 and Table. No 12.** Photo evidences 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 the purpose, schedule of health examination of the workers should be drawn and followed accordingly.**	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 there to. During the reporting period (April 2020 to September 2020) There is No Employee Under go to IME & PME. The IME & PME tests include PFT, X-Ray, and lung spirometer etc.
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.**	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

	Action plan for 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 wild life conservation plan prepared specific to 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 action plan may be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.	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 site specific Wild Life Management Plan. Various activities has been under taken towards protection of wild animals by 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 – 10**.
XXVII.	**Provision shall be made for the housing of the 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.**	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, whichever is closer shall be monitored periodically. Further, 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**	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 discharge, for surface run off 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 public domain. Environmental parameters uploaded in the company website are enclosed as

	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.	**ANNEXURE – 11** and photo of the display board is 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 mines closure of the Project.

General Cond. No	General condition	Present Status
I.	**No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest.**	The Mining method of the project is fully mechanized having shovels, dumper combinations and sorting and sizing of the Iron Ore and it's being followed as per the approved Scheme of Mining/Plan.
II.	**No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.**	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;

Year	ROM (In Mt.)	OB Removed (In Mt.)
2018-2019	3787130	1363949
2019-2020	3773306	2049152
2020-2021 (till Sept, 2020)	592080	2299900

III.	**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. 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.**	The monitoring of AAQ is being done in the core as well as buffer zone of the ML area, There are 4 no. of monitoring station in core zone i.e. Mines Office, Employee camp, near Magazine and near ML Area no. 11 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 except monsoon. The monitoring report for the period April to September 2020 reveals that the parameter 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 enclosed as **ANNEXURE-12.**
IV.	**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.**	Data on ambient air quality (PM10, PM2.5, and SO2 & $NO_{x)}$ is being submitted once in six monthly basis to State Pollution Control Board. The latest submission is enclosed as **ANNEXURE –13.**
V.	**Fugitive dust emissions from all the sources should be controlled regularly water spraying arrangement on haul roads, loading and unloading and transfer points should be provided and properly maintained.**	The project has implemented different type of dust suppression system to arrest the fugitive dust emission from the source level in and around the mines premises. The detailed implementations are 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 is suppressed by use of mobile water tankers. In this regard project has engaged two no. of 25 KL mobile water tanker, which is 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. The latest monitoring report is enclosed here as **Table. No – 13.**
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 ear plugs / muffs.**	Regular maintenance of HEMM & Processing plants is being carried out to minimize the noise level from source. 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 well within prescribed norms, the monitoring reports are given in **Table -14.**
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 31th December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.**	STP is provided / implemented at mines employee's camp for treatment and reuse of the waste domestic water from Kitchen, toilet and etc. The treated water is used for plantation and dust suppression activities. ETP is provided at mines work shop for the treatment of waste water from water service of equipment. The existing ETP is having physical separation of oil and grease by oil trapping system and silt sedimentation pit. The both STP and ETP final discharge water is being monitored on fortnightly once to ensure the final discharge water in line to 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 – 11 and Table. No 12.**
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**	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

	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	amendments there to. During the reporting period (April 2020 to September 2020) There is No Employee Under gone to IME & PME. The IME & PME tests include PFT, X-Ray, and lung spirometer etc.
IX.	**A separate environmental management cell with suitable qualified personnel should be setup 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 separate account and should not 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 the **Table no.-15**
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 authorized and the date of start of land development work.**	We will abode the said condition.
XII.	**The Regional Office of the Ministry located at Bhubaneswar shall monitor complains 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 status of the implementation of**	The Project is uploading the last six monthly EC Compliance reports in the website bearing address www.uimm-ip.com on regular basis.

	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 details of submission of the six monthly compliance reports on the status of the implementation of the stipulated conditions are enclosed as **TABLE NO.-16.**
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 suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.**	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.
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 been 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**	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 in the company website i.e. www.uimm-ip.com. The latest Form – V for the

	(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.	FY 2019-20 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 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.**	The Project has already advertised for iron ore mining and iron ore beneficiation plant 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.
XVIII.	**The mining lease holder shall, after ceasing mining operations, undertake re-grassing the mining area, and any other areas which may have been disturbed due their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna, etc.**	At present project is in operational status and there is no such area has been exhausted yet. The lease holder has stacked the over burden and waste at earmarked dump site as per approved mining plan as per approved Scheme of Mining. Whenever the reclamation work will be started, the lease holder is ready to make activities to restore the land to a condition which is fit for growth of fodder, flora, fauna, etc.

PHOTOS-1:

Photo showing check dams & Check weirs implementation within ML

Photo Showing varies Nallah protection measures under taken out side ML

Photos showing village harvesting pond developed in surrounding villages

Photo showing OB & sub grade dumps are provided with retention wall and other Mitigate measures.

PHOTOS -2:

Retaining wall provided at the toe end of the dump

PHOTOS -3:

Photos showing varies area plantation 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 is various crusher & screen plants

PHOTOS -5:

PHOTO SHOWING ROOF RAIN WATER HARVESTING SYSTEMS EMPLOYEE'S CAMP

PHOTO SHOWING ROOF RAIN WATER HARVESTING SYSTEMS AT MINES & UNCHABALI DISPENSARY

PHOTOS – 6:

Photo Showing DP 1100 Hydraulic Drilling Machine equipped with dust extractor & wet drilling mechanism

PHOTOS -7:

PHOTO SHOWING ETP PLANT PROVIDED IN WORK SHOP SERVICE CENTER

PHOTOS SHOWING STP TECHNICAL STRUCTURE & 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	2000 Sqr. Mtr of dump surface area covered with Geo textile applications. and 200 meter retaining wall has been constructed followed with siltation pond, drainage water is connected to bottom check dams.
2.	Over Burden-1	Near Pillar No L2	Retaining wall along with garland drainage is constructed with settling pit. 130 Mtr. of Hume pipe drainage patterns have been constructed.

 # TABLE-4 SHOWING VARIES DUMP PROTECTIONS MEASURES IMPLEMENTATION

TABLE-5A

Plantation Details as on March_2020			
Sl. No	**Year**	**Number of Saplings**	**Survival Rate**
1	2020-2021	600	75%
2	2019-2020	1850	80%
3	2018-2019	5860	85%
4	2017-2018	2450	90%
5	2016-2017	11865	86%

 # TABLE-5A SHOWING YEAR WISE PLANTATION DETAILS

TABLE-5B

SL. NO	LOCATION	Description	2020-21	Area in Ha.	PLANTS TYPE	Remarks
1	IN Side ML	Nallah Gap Filling	530	0.522	Mango, Neem, karanja, Chakunda,	
2	OUT SIDE ML AREA	Village Road Side	70	0.05	Radha chuda, krishna chuda,cha kunda, saru cha kundha, karanja,siru tree, Arjuna.	

 # 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	1	Mines Benches, Stock yard, plant area, and other mines premises including Village Roads & Railway Sidings
3	High Frequency mobile water Tanker	16 KL	1	
4	Mobile water tanker	8 KL	2	
5	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 2020 to SEPTEMBER 2020							
	Month	**Quality Parameter, Results, micro.gm/CUM**					
		Range	**PM10**	**PM2.5**	**SO_2**	**NO_x**	**CO**
AAQ-C1 – Mines main gate (Core zone)	APR-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		60.40	27.30	6.80	18.90	0.256
	JULY-20		58.40	26.40	6.70	18.90	0.252
	AUG-20		61.90	28.0	6.90	19.40	0.260
	SEPT-20		62.70	28.30	7.0	19.70	0.263
AAQ-C2 – Employees Camp (Core Zone)	APR-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		58.60	27.50	6.60	18.40	0.248
	JULY-20		59.90	28.10	6.70	18.80	0.250
	AUG-20		61.50	28.80	6.90	19.30	0.257
	SEPT-20		62.30	29.20	7.0	19.50	0.260
AAQ-C3- Beneficiation plant (Core Zone)	APR-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		59.30	26.60	6.60	18.60	0.251
	JULY-20		60.80	27.20	6.80	19.0	0.257
	AUG-20		62.40	28.0	7.0	19.60	0.264
	SEPT-20		63.30	28.40	7.10	19.80	0.268
AAQ-B2 Village Balda (Buffer Zone)	APR-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		59.20	26.70	6.60	18.50	0.250
	JULY-20		57.10	25.80	6.40	17.90	0.242
	AUG-20		60.70	27.40	6.80	19.0	0.254
	SEPT-20		60.10	27.70	6.9	19.20	0.257
AAQ-B3 Village Nayagarh (Buffer Zone)	APR-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		62.0	28.0	6.90	19.40	0.262
	JULY-20		58.30	26.30	6.50	18.30	0.246
	AUG-20		62.70	28.30	7.0	19.60	0.265
	SEPT-20		63.40	28.60	7.10	19.90	0.268
AAQ-B1 Village Unchabali (Buffer Zone)	APR-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		60.0	27.10	6.70	18.80	0.254
	JULY-20		56.0	25.30	6.30	17.50	0.237
	AUG-20		59.50	27.20	6.80	18.90	0.255
	SEPT-20		58.90	27.50	6.80	19.10	0.258
Note – The monitoring and testing is carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.							

Monitoring done through CAAQMS							
CAAQMS-C1 MINES ENTRY AND EXIT GATE	APR-20	AVG	60.09	32.16	5.15	12.83	0.34
	MAY-20		39.91	18.48	NA	11.95	0.43
	JUNE-20		29.38	11.85	NA	16.02	0.20
	JULY-20		Because of power issue in the circuit report system under maintenance				
	AUG-20		74.69	11.85	NA	10.93	0.20
	SEPT-20		39.41	12.70	NA	14.42	0.07

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

TABLE-8

Surface Water Flow Rate in CUM/SEC				
SL. No	**Monitoring Station**	**June - 2020**	**August - 2020**	**September - 2020**
1	Baitarani river	4.46	4.60	4.52
2	Dalko Nallah	1.02	0.04	0.08
3	Jalpa Nallah	0.29	0.05	0.25
4	Kashi Nallah	0.01	0.03	0.01
5	Unchabali Nallah	0.01	0.07	0.42
6	Dalki Nallah	0.16	0.08	0.08
7	Ghairajal Nallah	0.22	0.12	0.25

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

Table-09

Monitoring Station	RL	Description	GWL (BGL in M)					
			APR-20	MAY-20	June-20	July-20	Aug-20	Sept-20
Inside ML area	510	Bore Well	5.80	6.00	6.10	5.85	5.62	4.70
Unchabali	504	Open Well	**Monitoring not carried due to COVID – 19 pandemic**		5.60	5.40	5.80	4.10
Kalimatti	550	Open Well			2.70	2.50	3.0	2.90
Balda	568	Open Well			3.20	3.0	2.90	2.50
Malda	507	Bore Well			6.50	6.30	6.40	5.60
Nayagarh	504	Open Well			6.80	6.50	6.40	4.60

#TABLE NO. 09 SHOWING GROUND WATER LEVEL MONITORING DATA

TABLE-10

SL.NO	MONTH	Blasting Results in PPV	Norms for PPV
1	July - 20	2.14 mm/sec	5.00 mm /sec
2	September - 20	2.85 mm/sec	5.00 mm /sec

 # TABLE NO.-10 SHOWING PEAK PARTICLE VELOCITY REPORT

TABLE - 11

SL. NO	DESCRIPTION	Unit	June-20	July-20	Aug-20	Sept-20
1	**pH**	-	7.20	7.30	7.10	6.90
2	**Total Suspended Solids (TSS)**	Mg/l	6	6.0	4.0	8
3	**(BOD)**	Mg/l	5	6.0	5	8
Note – The monitoring and testing is carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.						

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

TABLE – 12

SL .NO	DESCRIPTION	Unit	June-20	July-20	Aug-20	Sept-20
1	pH	-	7.40	6.9	7.20	6.80
2	Total Suspended Solids (TSS)	Mg/l	82	52	56	40
3	Oil & Grease	Mg/l	0.4	0.4	0.4	0.4
Note – The monitoring and testing is carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory.						

#TABLE NO.12 SHOWING EFFULENT WATER TREATMENT PLANT WATER DISCHARGE REPORT

TABLE – 13

FUGITIVE EMISSION DUST MONITORING REPORT

Periods		MONITORING LOCATIONS					
		CRUSHER PLANT	WORK SHOP	HAUL ROAD	SCREEN PLANT	MINES FACE	DUMP AREA
		Results, micro.gm/CUM					
Apr-20	AVG	Monitoring has not been carried out because of COVID-19 Pandemic					
May-20	AVG						
June- 20	AVG	535	563	567	564	596	577
July - 20	AVG	557	534	546	568	518	551
Aug-20	AVG	553	531	542	564	514	547
Sept - 20	AVG	638	612	625	650	593	631
Note – The monitoring and testing is carried by Kalyani Laboratory which is a MoEF, SPCB and NABL accredited laboratory..							

 # TABLE NO.-13 SHOWING FUGITIVE EMISSION MONITORING REPORT

TABLE – 14

Sl. No.	Locations	NOISE LEVEL, Leq.in dB (A) from data log of monitor.			
		June-20	July-20	Aug-20	Sept-20
Work Zone Noise Report					
1	MINES PIT	68.90	64.50	65.40	65.20
2	LOADING POINT	76.70	71.80	69.80	69.00
3	OPERATOR CABIN	67.0	72.0	69.30	69.60
4	WORK SHOP	68.10	66.10	68.40	64.40
5	SCREEN PLANT	69.20	66.90	69.90	71.0
6	CRUSHER PLANT	75.20	73.30	72.60	70.40
Ambient Noise Report					
1	BALDA	51.80	52.20	50.0	50.80
2	MALDA	43.90	52.50	52.30	51.50
3	NAYAGARH	54.20	54.60	51.30	49.20
4	UNCHABALI	47.20	57.20	53.70	51.90
5	OFFICE AREA	44.10	51.80	52.60	53.30
6	CAMP AREA	46.60	51.20	51.30	50.20
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.-14 SHOWING NOISE MONITORING 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 – 15

Sl. No	DESCRIPTION	2017-18	2018-19	2019-20	2020-2021 (Apr to Sept, 20)
Environmental Monitoring Parameter Testing charges					
1	AAQ, Ground Water, Surface Water, STP, ETP, Soil Test, Fugitive Test etc.	22.49	87.40	62.79	18.79
Dump Stabilization & Plantation					
2	Retaining wall, garland drain & its maintenance	6.00	5.00	6.50	6.60
3	Plantation, dump stabilization by coir matting	24.56	10.00	5.0	6.0
Dust Suppression					
4	Mobile Sprinkler	50.32	40.35	41.25	15.00
5	Fixed Sprinkler	13.10	0.80	0.50	0.10
6	Dry fog	1.20	0.50	0.50	0.10
Environmental Instruments and its maintenance & calibration					
7	RDS, Noise Meter, PPV Instruments etc.	1.25	1.30	1.30	0.20
8	ETP and its maintenance	1.80	1.20	8.95	1.20
9	STP and its maintenance	2.18	1.50	0.6	0.30
Miscellaneous Expenses					
10	Rain water harvesting and its maintenance	2.31	1.00	0.3	0.10
11	Occupational Health & Hygiene monitoring	6.62	1.60	2.0	
12	Others (Including Nallah Protection measures)	3.95	2.0	1.2	0.60
Total		**135.78**	**152.65**	**130.89**	

TABLE - 16

Sl. No.	PERIOD	DATE OF SUBMISSION
1.	October -2019 to March-2020	29.05.2020
2.	April-2019 to September-2019	28.11.2019
3.	October – 2019 to March – 2019	27.05.2019
4.	April – 2018 to Sept – 2018	01.12.2018
5.	October -2017 to March-2018	28.06.2018
6.	April-2017 to September-2017	04.12.2017
7.	October -2016 to March-2017	09.06.2017
8.	April-2016 to September-2016	25.11.2016
9.	October-2015 to March-2016	12.05.2016
10.	April-2015 to September -2015	25.11.2015
11.	October -2014 to March -2015	22.06.2015
12.	April-2014 to September -2014	10.11.2014
13.	October -2013 to March - 2014	23.05.2014
14.	April - 2013 to September - 2013	25.11.2013
15.	October - 2012 to March - 2013	25.05.2013

#TABLE NO.-16 SHOWING EC COMPLIANCE SUBMISSION DETAILS

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/20/04 **DATE: 29.04.2020**

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

Subject : **Submission of compliance Report under Consent order to operate for Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik for the period of April 2019 to March 2020.**

Reference : **Approved Consent order No. 2645 vide letter no 2746 / IND-I-CON-6035 dated on 06.02.2016**

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 2019 to March 2020 in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik.

This is for your kind information, please

Thanking You,

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

Mines Manager 29/4/20

Mines Manager
Unchabali Iron & Mn. Mines
Indrani Patnaik
Maharpur

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 ...

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°: 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 *e/c.* 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.

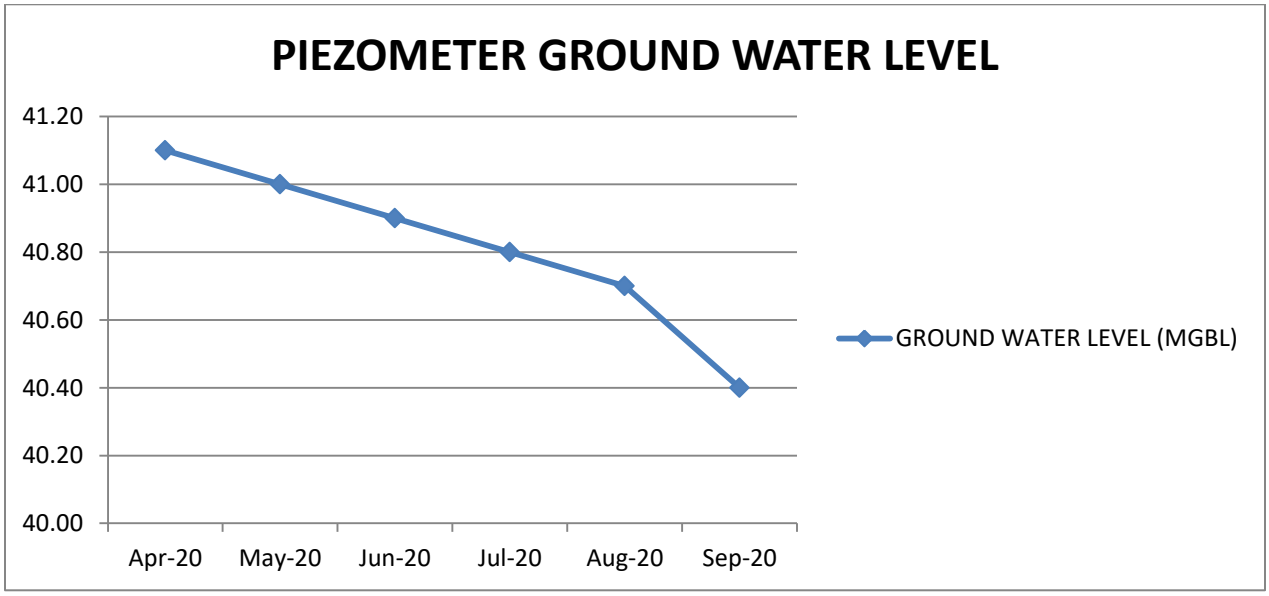
(xiii) Record File.

31/5/2011

(SATISH C. GARKOTI)
Scientist 'F'

Annexure - 5

PIEZOMETER GROUND WATER 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

ANNEXURE - 7

POLLUTION UNDER CONTROL CERTIFICATE

Authorised By: RTO ROURKELA

Transport Commissionerate, Odisha

TEST RESULT : PASS

VALID TILL: 17/Mar/2021

Certificate Sl. No.:	OR01400210001144
Registration No.:	**OD09G4399**
Chassis No.:	YV2JSGOGX98887437H12
Engine No.:	203413
Class of Vehicle:	Goods Carrier
Make:	"VOLVO GROUP INDIA PVT LTD"
Model:	FM 400 8X4
Vehicle Category:	HEAVY GOODS VEHICLE
Engine Stroke(2/4):	
Date of Registration:	15/Oct/2009
Emission Norms:	BHARAT STAGE II
Fuel:	DIESEL
Date of Testing:	18/Sep/2020

DIESEL DRIVEN VEHICLES
Certified that the vehicle conforms to the standards prescribed under rule 115(2) of CMV Rules 1989

FUEL	Light Absorption Coefficient (Permissible Limit)	Measured Value
DIESEL	2.45	1.17

Time of Testing:	09:12:26
Fee Without GST	150.0
CGST	13.5
SGST	13.5
Fee Charged:	Rs.177.0

In case of any complain Please write to Transport Commissioner Odisha

Auto Emission Testing Centre Code: OR0140021
GST No: 21ENXPS7063H1ZC
Testing Centre Name: SAI MOBIL POLLUTION TESTING CENTRE
Centre Address: KOIRA,SUNDARGARH,770048
Test Conducted By: UTKALIKA SWAIN

TEST RESULT FOR DIESEL VEHICLE

	IDLE RPM	MAX RPM	K_VALUE	OIL TEMP
TEST 1	555.0	4555.0	1.17	55.0
TEST 2	555.0	4555.0	1.17	55.0
TEST 3	555.0	4555.0	1.17	55.0
AVG	555.0	4555.0	1.17	55.0

This is a computer generated certificate and does not require signature

Event Report

Date/Time Manual at 16:41:49 July 25, 2020
Range Geo: 254 mm/s **Record Time** 103.0 sec at 1024 sps **Job Number:** 507

Notes
Location: Unchabali Iron & Mn. Mines
Client: Smt. Indrani Patnaik
User Name: Dilip Srivastav
General: Mines

Extended Notes
BLASTING RL - 650
NO OF HOLES - 110
DEPTH OF HOLES - 7.0 MTR
SPACE – 3.5 MTR
BURDEN - 3 MTR
VOLUME - 8085 CUM
EXPLOSIVE USED – 6102 KG
CHARGE FACTOR - 0.75 KG/CUM

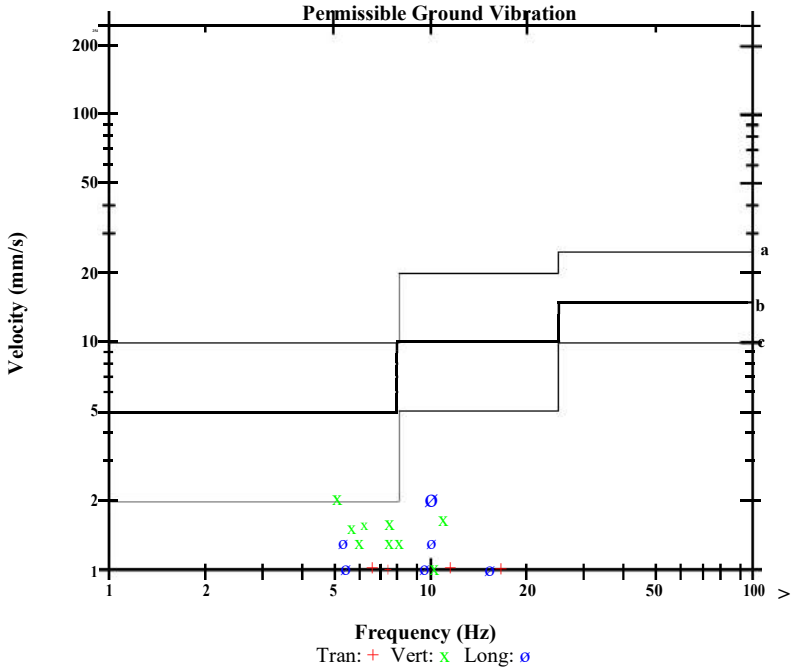
Microphone Linear Weighting
PSPL 119.0 dB(L) 17.8 pa.(L) at 57.461 sec
ZC Freq 4.8 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 471 mv)

	Tran	Vert	Long	
PPV	1.14	2.03	1.78	mm/s
PPV (Ponderated)	1.74	3.06	1.77	mm/s
PPV	52.2	57.2	56.0	dB
ZC Freq	16	4.8	10	Hz
Time (Rel. to Trig)	57.306	57.242	57.415	sec
Peak Acceleration	0.0265	0.0265	0.0265	g
Peak Displacement	0.0247	0.0528	0.0396	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.9	7.6	7.6	Hz
Overswing Ratio	3.5	3.5	3.7	

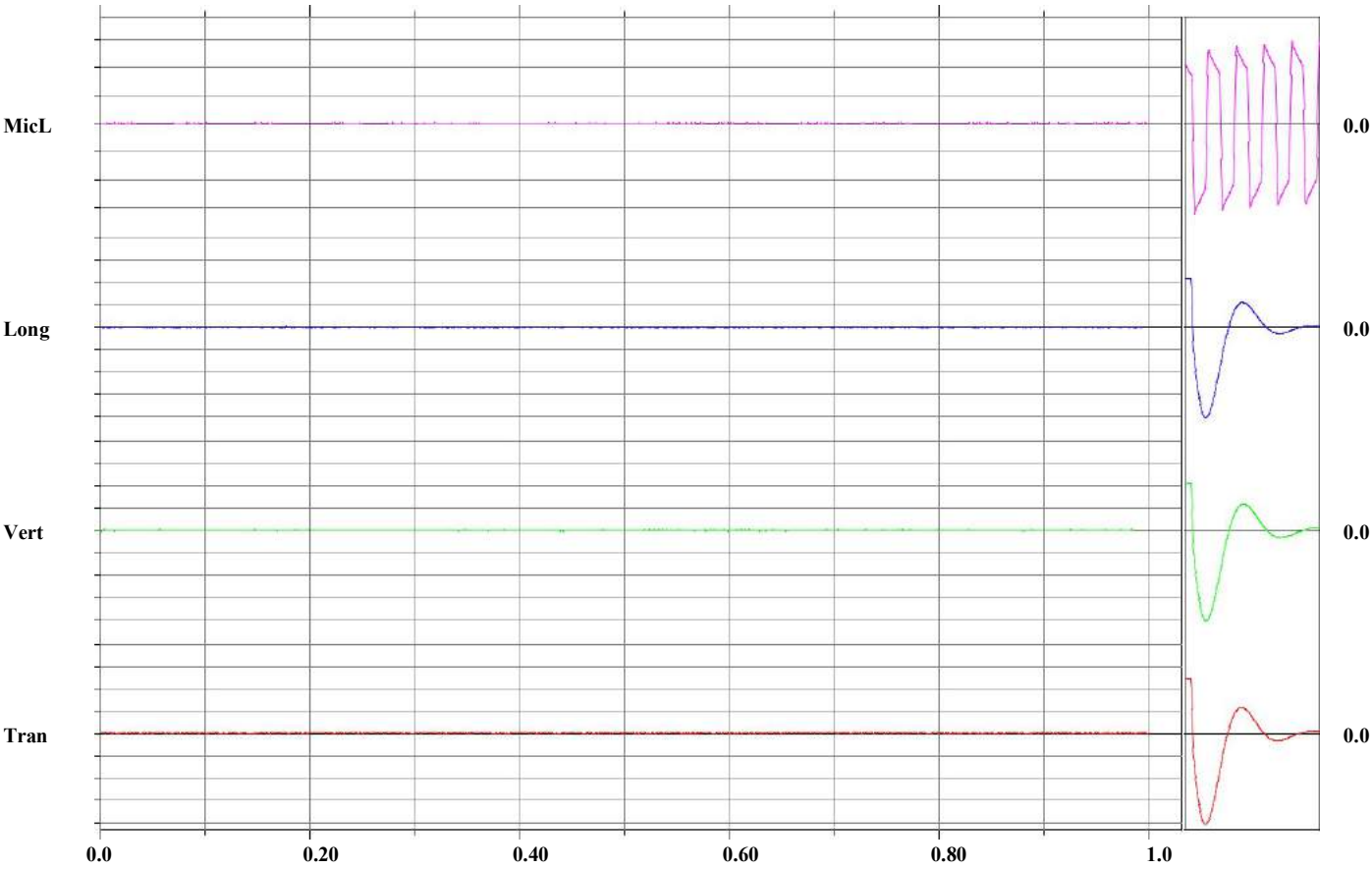
Peak Vector Sum 2.14 mm/s at 57.255 sec

Serial Number BE16163 V 10.60-8.17 MiniMate Plus
Battery Level 5.9 Volts
Unit Calibration October 13, 2019 by UES, New Delhi
File Name R163FX6L.GD0
Scaled Distance 47.4 (300.0 m, 6102.0 kg)

DGMS India (A)



a)Industrial Buildings
b)Domestic houses/structures
c)Historic objects, sensitive structures



Time scale has been modified and may not represent the actual length of the event record
Time Scale: 0.10 sec/div **Amplitude Scale:** Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div

Sensor Check

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."*

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*

Annexure - 10

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)

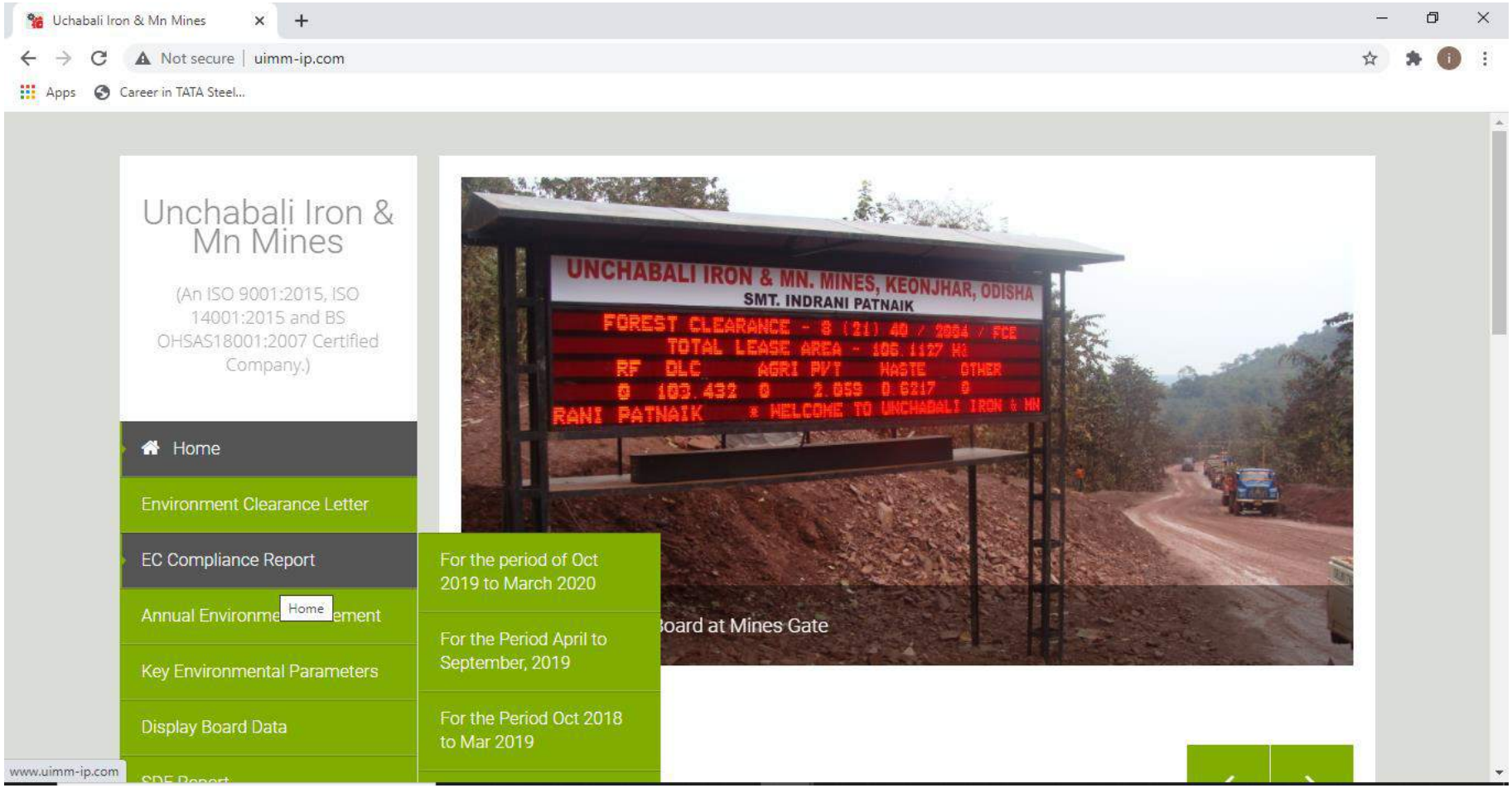
Memo No. 1261 dt. 15.2.2010.

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.

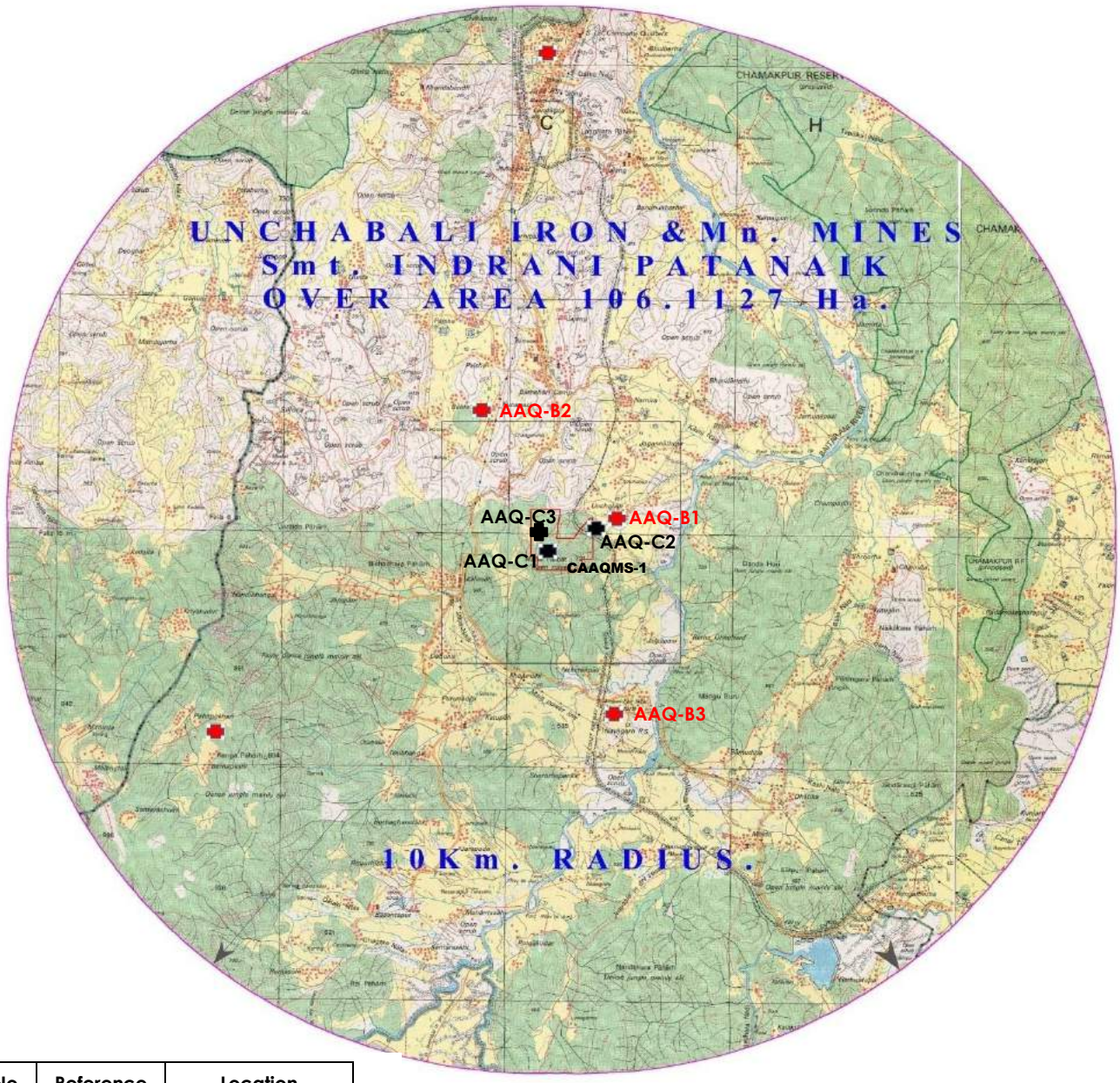
Enc: One NO. approved S.S.
WL Conservation Plan

Conservator of Forests (WL)

Annexure – 11


Uchabali Iron & Mn Mines
Not secure | uimm-ip.com
Apps
Career in TATA Steel...
Unchabali Iron & Mn Mines
(An ISO 9001:2015, ISO 14001:2015 and BS OHSAS18001:2007 Certified Company.)
Home
Environment Clearance Letter
EC Compliance Report
Annual Environme ement
Key Environmental Parameters
Display Board Data
For the period of Oct 2019 to March 2020
For the Period April to September, 2019
For the Period Oct 2018 to Mar 2019
UNCHABALI IRON & MN. MINES, KEONJHAR, ODISHA
SMT. INDRANI PATNAIK
FOREST CLEARANCE - 8 (21) 40 / 2004 / FCE
TOTAL LEASE AREA - 105.1127 Ha
RF DLC AGRI PVT HASTE OTHER
0 103.432 0 2.059 0.6217 0
RANI PATNAIK * WELCOME TO UNCHABALI IRON & MN
oard at Mines Gate
www.uimm-ip.com

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

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

INDRANI PATNAIK

(MINES OWNER)

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

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

REFERENCE: UIMM/IP/ENV/OCT/20/01 **DATE: 30.10.2020**

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

Subject: Submission of Six Monthly Ambient Air Quality & Fugitive Dust Emission Report for the period from April 2020 to September 2020 in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik

Reference: Special Condition no. 26 in approved Consent order No. 2645 vide letter no 2746 / IND-I-CON-6035 dated on 06.02.2016.

Dear Sir,

With reference to the above cited subject and reference to the above special condition no, we are hereby submitting the **Six Monthly Ambient Air Quality & Fugitive Emission** monitoring report **in Appendix - 1** for the period from April 2020 to September 2020 in respect of Unchabali Iron & Mn. Mines of Smt. Indrani Patnaik under the stipulated special compliance condition in approved consent order.

This is for your kind information, please.

Thanking you,

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

(Authorized Signatory) 30/X/20

Enclosed: Appendix – 1 & As above
Copy to: The Regional Officer, SPCB, Orissa, Regional Office, Collage Road, Dist. - Keonjhar, and Orissa.

W.O. Boneikela, Joda, Dist. : Keonjhar - 758034, Ph. : 06767-273448, 272304, Fax : 06767-272304

Appendix – 1

Ambient Air Quality Monitoring Report – APRIL 2020 to SEPTEMBER 2020

SUMMARIZED AMBIENT AIR QUALITY MONITORING REPORT: UNCHABALI IRON & MN ORE MINING PROJECT OF SMT. INDRANI PATNAIK, DISTRICT; KEONJHAR, ORISSA.							
Period: APRIL 2020 to SEPTEMBER 2020							
	Month	Quality Parameter, Results, micro.gm/CUM					
		Range	PM10	PM2.5	SO_2	NO_x	CO
AAQ-C1 – Mines main gate (Core zone)	APR-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		60.40	27.30	6.80	18.90	0.256
	JULY-20		58.40	26.40	6.70	18.90	0.252
	AUG-20		61.90	28.0	6.90	19.40	0.260
	SEPT-20		62.70	28.30	7.0	19.70	0.263
AAQ-C2 – Employees Camp (Core Zone)	APR-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		58.60	27.50	6.60	18.40	0.248
	JULY-20		59.90	28.10	6.70	18.80	0.250
	AUG-20		61.50	28.80	6.90	19.30	0.257
	SEPT-20		62.30	29.20	7.0	19.50	0.260
AAQ-C3- Beneficiation plant (Core Zone)	APR-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		59.30	26.60	6.60	18.60	0.251
	JULY-20		60.80	27.20	6.80	19.0	0.257
	AUG-20		62.40	28.0	7.0	19.60	0.264
	SEPT-20		63.30	28.40	7.10	19.80	0.268
AAQ-B2 Village Balda (Buffer Zone)	APR-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		59.20	26.70	6.60	18.50	0.250
	JULY-20		57.10	25.80	6.40	17.90	0.242
	AUG-20		60.70	27.40	6.80	19.0	0.254
	SEPT-20		60.10	27.70	6.9	19.20	0.257
AAQ-B3 Village Nayagarh (Buffer Zone)	APR-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		62.0	28.0	6.90	19.40	0.262
	JULY-20		58.30	26.30	6.50	18.30	0.246
	AUG-20		62.70	28.30	7.0	19.60	0.265
	SEPT-20		63.40	28.60	7.10	19.90	0.268
AAQ-B1 Village Unchabali (Buffer Zone)	APR-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic				
	MAY-20						
	JUNE-20		60.0	27.10	6.70	18.80	0.254
	JULY-20		56.0	25.30	6.30	17.50	0.237
	AUG-20		59.50	27.20	6.80	18.90	0.255
	SEPT-20		58.90	27.50	6.80	19.10	0.258

Note – The monitoring and testing is carried by Kalyani Laboratory which is a MoEF&CC, SPCB and NABL accredited laboratory.

Monitoring done through CAAQMS							
CAAQMS-Q1 MINES ENTRY AND EXIT GATE	APR-20	AVG	60.09	32.16	5.15	12.83	0.34
	MAY-20		39.91	18.48	NA	11.95	0.43
	JUNE-20		29.38	11.85	NA	16.02	0.20
	JULY-20		Because of power issue in the circuit report system under maintenance				
	AUG-20		74.69	11.85	NA	10.93	0.20
	SEPT-20		39.41	12.70	NA	14.42	0.07

Fugitive Emission Monitoring Report – APRIL 2020 to SEPTEMBER 2020

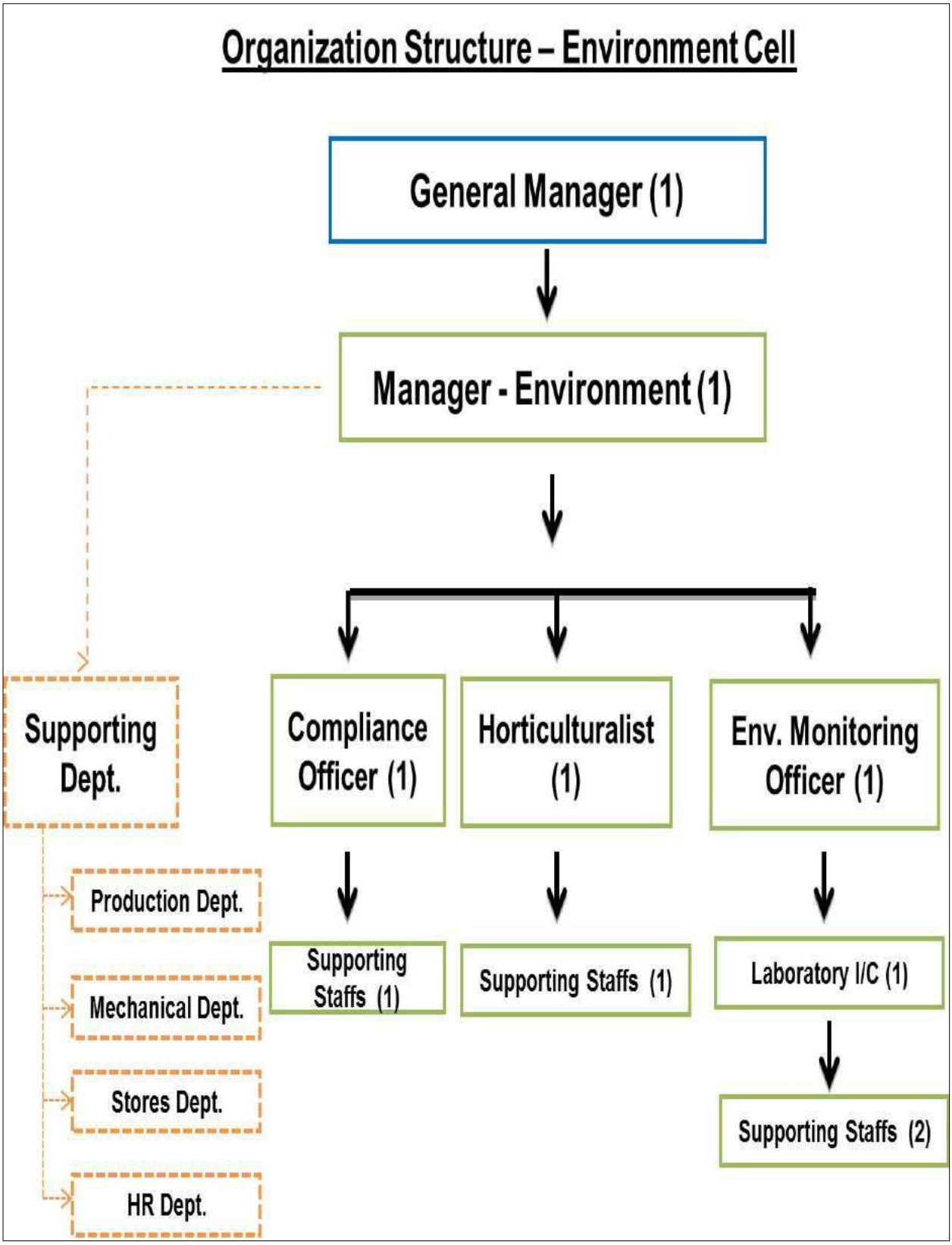
Periods		MONITORING LOCATIONS					
		CRUSHER PLANT	WORK SHOP	HAUL ROAD	SCREEN PLANT	MINES FACE	DUMP AREA
		Results, micro.gm/CUM					
Apr-20	AVG	Monitoring not has been carried out because of COVID-19 Pandemic					
May-20	AVG						
June- 20	AVG	535	563	567	564	596	577
July - 20	AVG	557	534	546	568	518	551
Aug-20	AVG	553	531	542	564	514	547
Sept - 20	AVG	638	612	625	650	593	631
Note – The monitoring and testing is carried by Kalyani Laboratory which is a MoEF&CC, SPCB and NABL accredited laboratory.							

Date: 30.10.2020

Authorized Signatory

Special Condition – 26

Monitoring of Ambient Air quality and fugitive dust emission of the mine shall be done twice in a week (24 hourly) at particular site and data shall be submitted to the state pollution control board, once in six months.


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/JUNE/19/03 **DATE: 28.06.2020**

To
The Member Secretary
State Pollution Control Board, Orissa
Parivesh 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 2019-2020.

Dear Sir,

With reference to the above subject, we are herewith submitting the Environmental Statement for the financial year 2019-2020 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**

Authorized Signatory 28/6/20

Manager
Unchabali Iron & Mn Mines

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 2020

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	-	09.05.2019

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 output	Process water consumption per unit of
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 raw material	Consumption of 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	7.38	Within the Range
TSS	0.0715kg /day	71.50 mg/ lit	28.50 % below the norm
Oil & Grease	0.0004 kg /day	4.00 mg/ lit	96.00 % below the norm
Water (S.T.P Discharge) 10 M^3 / D			
pH	NA	7.15	Within the Range
T.S.S	0.1274 kg/day	12.74 mg/ lit	87.26 % below the norm
B.O.D	0.0753 kg/day	25.09 mg/ lit	74.91 % below the norm
Mines Surface runoff water Quality Report			
pH	NA	7.07	Within the Range
T.S.S	386.89 kg /day	72.0 mg/ lit	28.00 % below the norm
Oil & Grease	10.74 kg / day	2.0 mg/ lit	80.00 % 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	22.47 KL	20.16 KL
4) Oil contaminate waste	0.280 TON	0.160 TON

PATRT-E
Solid Waste

		Total Quantity	
		During the previous Financial year	during the current financial year
(a)From process: (Overburden and Intercalated Waste)	:	1363949(T)	2049152(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.
- Two no. of 30 KL & 25 KL capacity mobile water tanker has engaged for mines haul road dust suppression.
- Five 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:

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories
78/944, PAHALA, BHUBANESWAR-752101, ODISHA

TEST REPORT

NABL ULR NO	:	**TC704320000004944F**
Test Report No	:	**2810 | 53521350KLPL/9/20/WATER/03013** Issue Date: 19-Sep-2020
Amendment No	:	- Amendment Date : -
Reference	:	UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020
Customer Name	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA
Date of receipt	:	14-Sep-2020 Test Commenced On : 14-Sep-2020 Test Completion On: 19-Sep-2020
Sample Description	:	**SURFACE WATER**
Sample Condition	:	SEALED
Sample Identification * :		**SURFACE WATER** Sampling Date : 04-Sep-2020
Batch No , Lot No	:	NA MFG Date : NA EXP Date : NA
Received Quantity	:	1LTR X 3 Place of Collection :BAITARANI UPSTREAM DT-04.09.2020
Sample Collected By	:	By GLOBAL TECH ENVIRO EXPERTS PVT.LTD
Ref.To Sampling Procedure:		

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100ml.	5000	>1600	IS: 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Chloride as Cl	mg/l, Max	600	9.1	APHA 23rd Edition (4500-Cl - -B), 2017
ii	Sulphate as SO4	mg/l, Max	400	10	APHA 23rd Edition (4500-So42 - -E), 2017
iii	Nitrate as NO3	mg/l, Max	50	1.5	APHA 23rd Edition (4500-NO3 - -E), 2017
iv	Temperature	°c	-	23	APHA ----------
v	Fluoride as F	mg/l, Max	1.5	0.11	APHA 23rd Edition (4500-F - -D,-C), 2017
vi	Total Dissolved Solid	mg/l, Max	1500	44	APHA 23rd Edition (2540 C), 2017
vii	Chemical Oxygen Demand	mg/l, Max	-	20	APHA 23rd Edition (5220 B), 2017
viii	Dissolved Oxygen	mg/l, Max	4.0	6.1	APHA 23rd Edition(4500-O-C), 2017
ix	Biochemical Oxygen Demand(For 3 days 27deg C)	mg/l, Max	--	2.0	APHA 23rd Edition 2012(5210 B), 2017
x	Copper (as Cu)	mg/l, Max	1.5	<0.01	IS 3025 (Part 42):1992 RA 2009
xi	Iron (as Fe)	mg/l, Max	50	3.2	APHA-23rd Edition (3500-Fe-B , 3111 B) 2017
xii	Manganese (as Mn)	mg/l, Max	--	<0.1	IS 3025 (Part 59):2006 RA 2012
xiii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.002	<0.001	IS 3025 (Part 43):1992 RA 2009
xiv	Selenium (as Se)	mg/l. Max	0.01	<0.01	IS 3025 (Part 56):2003 RA 2009
xv	Zinc (as Zn)	mg/l, Max	15	<0.01	IS 3025 (Part 49):1994 RA 2009
xvi	Free Ammonia (as NH3)	mg/l, Max	---	<0.01	APHA-23rd Edition (4500-NH3-B) 2017
xvii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	---	<0.03	APHA-23rd Edition (4500-NH3-B) 2017
xviii	Total Kjeldhal Nitrogen	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-Norg-B) 2017
xix	Total Suspended Soilds	mg/l, Max	---	16	APHA-23rd Edition (2540 D), 2017
xx	Oil & Grease	mg/l, Max	--	<0.025	APHA-23rd Edition (5520 B) 2017
xxi	Total Chromium	mg/l, Max	0.05	<0.01	IS 3025 (Part 52):2003 RA 2009

Kalyani Laboratories Pvt. Ltd. BBSR

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

Test Report No : 2810 | 53521350KLPL/9/20/WATER/03013

Parameters		Unit	Requirement	Result	Test Method
xxii	Residual Chlorine	mg/l, Max	---	<0.04	APHA-23rd Edition (4500-Cl-B) 2017
xxiii	Sulphide (as S)	mg/l, Max	---	<0.01	APHA-22nd Edition (4500-S2--F)
xxiv	Anionic Surface Active Agents (as MBAS)	mg/l	--	<0.1	Annex K of IS 13428:2005
xxv	Hexavalent Chromium (as Cr+6)	mg/l, Max	0.05	<0.05	APHA-23rd Edition (3500-Cr-B)2017
xxvi	Dissolved Phosphate (as P)	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-P-D) 2017
PHYSICAL PARAMETER					
i	Color	--	300	11	APHA 23rd Edition (2120 B), 2017
ii	pH Value	--	6.5-8.5	7.2	APHA 23rd Edition (4500-H+-B), 2017
iii	Odour	--	Unobjectionable	AGREEABLE	APHA 23rd Edition (2120 B), 2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.01	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Cyanide (as CN)	mg/l, Max	0.05	<0.02	IS 3025 (Part 27) :1986 RA 2003
iii	Lead (as Pb)	mg/l, Max	0.1	<0.01	IS 3025 (Part 47):1994 RA 2009
iv	Mercury (as Hg)	mg/l, Max	0.001	<0.001	IS 3025 (Part 48):1994 RA 2009
v	Nickel (as Ni)	mg/l, Max	---	<0.01	IS 3025 (Part 54):2003 RA 2009
vi	Arsenic (as As)	mg/l, Max	0.05	<0.01	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

Kalyani Laboratories Pvt. Ltd. BBSR

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

TEST REPORT

NABL ULR NO : **TC704320000004890F**

Test Report No : **2760 | 5348131AKLPL/9/20/WATER/03009** *Issue Date:* 07-Oct-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 14-Sep-2020

Sample Description : **SURFACE WATER**

Sample Condition : SEALED IN 1-LIT PET BOTTLE

*Sample Identification ** : **SURFACE WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 3 *Place of Collection* :BAITARANI RIVER DOWN STREAM ,DATE-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100ml.	5000	>1600	IS: 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Chloride as Cl	mg/l, Max	600	13.6	APHA 23rd Edition (4500-Cl - -B), 2017
ii	Sulphate as SO4	mg/l, Max	400	11	APHA 23rd Edition (4500-So42 - -E), 2017
iii	Nitrate as NO3	mg/l, Max	50	2.0	APHA 23rd Edition (4500-NO3 - -E), 2017
iv	Temperature	°c	-	23	APHA ----------
v	Fluoride as F	mg/l, Max	1.5	0.12	APHA 23rd Edition (4500-F - -D,-C), 2017
vi	Total Dissolved Solid	mg/l, Max	1500	50	APHA 23rd Edition (2540 C), 2017
vii	Chemical Oxygen Demand	mg/l, Max	-	25	APHA 23rd Edition (5220 B), 2017
viii	Dissolved Oxygen	mg/l, Max	4.0	5.6	APHA 23rd Edition(4500-O-C), 2017
ix	Biochemical Oxygen Demand(For 3 days 27deg C)	mg/l, Max	--	2.4	APHA 23rd Edition 2012(5210 B), 2017
x	Copper (as Cu)	mg/l, Max	1.5	<0.01	IS 3025 (Part 42):1992 RA 2009
xi	Iron (as Fe)	mg/l, Max	50	5.0	APHA-23rd Edition (3500-Fe-B , 3111 B) 2017
xii	Manganese (as Mn)	mg/l, Max	--	<0.1	IS 3025 (Part 59):2006 RA 2012
xiii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.002	<0.001	IS 3025 (Part 43):1992 RA 2009
xiv	Selenium (as Se)	mg/l. Max	0.01	<0.01	IS 3025 (Part 56):2003 RA 2009
xv	Zinc (as Zn)	mg/l, Max	15	<0.01	IS 3025 (Part 49):1994 RA 2009
xvi	Free Ammonia (as NH3)	mg/l, Max	---	<0.01	APHA-23rd Edition (4500-NH3-B) 2017
xvii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	---	<0.03	APHA-23rd Edition (4500-NH3-B) 2017
xviii	Total Kjeldhal Nitrogen	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-Norg-B) 2017
xix	Total Suspended Soilds	mg/l, Max	---	20	APHA-23rd Edition (2540 D), 2017
xx	Oil & Grease	mg/l, Max	--	<0.4	APHA-23rd Edition (5520 B) 2017
xxi	Total Chromium	mg/l, Max	0.05	<0.01	IS 3025 (Part 52):2003 RA 2009

Kalyani Laboratories Pvt. Ltd. BBSR

2760 | 5348131A

KLPL-342358 A

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

Test Report No : 2760 | 5348131AKLPL/9/20/WATER/03009

Parameters		Unit	Requirement	Result	Test Method
xxii	Residual Chlorine	mg/l, Max	---	<0.04	APHA-23rd Edition (4500-Cl-B) 2017
xxiii	Sulphide (as S)	mg/l, Max	---	<0.01	APHA-22nd Edition (4500-S2--F)
xxiv	Anionic Surface Active Agents (as MBAS)	mg/l	--	<0.1	Annex K of IS 13428:2005
xxv	Hexavalent Chromium (as Cr+6)	mg/l, Max	0.05	<0.05	APHA-23rd Edition (3500-Cr-B)2017
xxvi	Dissolved Phosphate (as P)	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-P-D) 2017
PHYSICAL PARAMETER					
I	Color	--	300	13	APHA 23rd Edition (2120 B), 2017
ii	pH Value	--	6.5-8.5	7.5	APHA 23rd Edition (4500-H+-B), 2017
iii	Odour	--	Unobjectionable	AGREEABLE	APHA 23rd Edition (2120 B), 2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.01	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Cyanide (as CN)	mg/l, Max	0.05	<0.02	IS 3025 (Part 27) :1986 RA 2003
iii	Lead (as Pb)	mg/l, Max	0.1	<0.01	IS 3025 (Part 47):1994 RA 2009
iv	Mercury (as Hg)	mg/l, Max	0.001	<0.001	IS 3025 (Part 48):1994 RA 2009
v	Nickel (as Ni)	mg/l, Max	---	<0.01	IS 3025 (Part 54):2003 RA 2009
vi	Arsenic (as As)	mg/l, Max	0.05	<0.01	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analysed By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

Kalyani Laboratories Pvt. Ltd. BBSR

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

TEST REPORT

NABL ULR NO : **TC704320000004949F**

Test Report No : **2815 | 53571355KLPL/9/20/WATER/03018** *Issue Date:* 19-Sep-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 19-Sep-2020

Sample Description : **SURFACE WATER**

Sample Condition : SEALED

*Sample Identification * :* **SURFACE WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 2 *Place of Collection :*UNCHABALI NALLAH UPSTREAM DT-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100ml.	5000	>1600	IS: 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Chloride as Cl	mg/l, Max	600	15.9	APHA 23rd Edition (4500-Cl - -B), 2017
ii	Sulphate as SO4	mg/l, Max	400	30	APHA 23rd Edition (4500-So42 - -E), 2017
iii	Nitrate as NO3	mg/l, Max	50	2.8	APHA 23rd Edition (4500-NO3 - -E), 2017
iv	Temperature	°c	-	23	APHA ----------
v	Fluoride as F	mg/l, Max	1.5	<0.05	APHA 23rd Edition (4500-F - -D,-C), 2017
vi	Total Dissolved Solid	mg/l, Max	1500	92	APHA 23rd Edition (2540 C), 2017
vii	Chemical Oxygen Demand	mg/l, Max	-	13	APHA 23rd Edition (5220 B), 2017
viii	Dissolved Oxygen	mg/l, Max	4.0	6.7	APHA 23rd Edition(4500-O-C), 2017
ix	Biochemical Oxygen Demand(For 3 days 27deg C)	mg/l, Max	--	1.3	APHA 23rd Edition 2012(5210 B), 2017
x	Copper (as Cu)	mg/l, Max	1.5	<0.01	IS 3025 (Part 42):1992 RA 2009
xi	Iron (as Fe)	mg/l, Max	50	6.2	APHA-23rd Edition (3500-Fe-B , 3111 B) 2017
xii	Manganese (as Mn)	mg/l, Max	--	<0.1	IS 3025 (Part 59):2006 RA 2012
xiii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.002	<0.001	IS 3025 (Part 43):1992 RA 2009
xiv	Selenium (as Se)	mg/l. Max	0.01	<0.01	IS 3025 (Part 56):2003 RA 2009
xv	Zinc (as Zn)	mg/l, Max	15	0.039	IS 3025 (Part 49):1994 RA 2009
xvi	Free Ammonia (as NH3)	mg/l, Max	---	<0.01	APHA-23rd Edition (4500-NH3-B) 2017
xvii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	---	<0.03	APHA-23rd Edition (4500-NH3-B) 2017
xviii	Total Kjeldhal Nitrogen	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-Norg-B) 2017
xix	Total Suspended Soilds	mg/l, Max	---	8	APHA-23rd Edition (2540 D), 2017
xx	Oil & Grease	mg/l, Max	--	<0.025	APHA-23rd Edition (5520 B) 2017
xxi	Total Chromium	mg/l, Max	0.05	<0.01	IS 3025 (Part 52):2003 RA 2009

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

Test Report No : 2815 | 53571355KLPL/9/20/WATER/03018

Parameters		Unit	Requirement	Result	Test Method
xxii	Residual Chlorine	mg/l, Max	---	<0.04	APHA-23rd Edition (4500-Cl-B) 2017
xxiii	Sulphide (as S)	mg/l, Max	---	<0.01	APHA-22nd Edition (4500-S2--F)
xxiv	Anionic Surface Active Agents (as MBAS)	mg/l	--	<0.1	Annex K of IS 13428:2005
xxv	Hexavalent Chromium (as Cr+6)	mg/l, Max	0.05	<0.05	APHA-23rd Edition (3500-Cr-B)2017
xxvi	Dissolved Phosphate (as P)	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-P-D) 2017
PHYSICAL PARAMETER					
i	Color	--	300	10	APHA 23rd Edition (2120 B), 2017
ii	pH Value	--	6.5-8.5	7.2	APHA 23rd Edition (4500-H+-B), 2017
iii	Odour	--	Unobjectionable	AGREEABLE	APHA 23rd Edition (2120 B), 2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.01	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Cyanide (as CN)	mg/l, Max	0.05	<0.02	IS 3025 (Part 27) :1986 RA 2003
iii	Lead (as Pb)	mg/l, Max	0.1	<0.01	IS 3025 (Part 47):1994 RA 2009
iv	Mercury (as Hg)	mg/l, Max	0.001	<0.001	IS 3025 (Part 48):1994 RA 2009
v	Nickel (as Ni)	mg/l, Max	---	<0.01	IS 3025 (Part 54):2003 RA 2009
vi	Arsenic (as As)	mg/l, Max	0.05	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

Kalyani Laboratories Pvt. Ltd. BBSR

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

TEST REPORT

NABL ULR NO : **TC704320000004942F**

Test Report No : **2808 | 5350134EKLPL/9/20/WATER/03011** *Issue Date:* 19-Sep-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 19-Sep-2020

Sample Description : **SURFACE WATER**

Sample Condition : SEALED

*Sample Identification ** : **SURFACE WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 3 *Place of Collection :*UNCHABALI NALLAH DOWNSTREAM DT-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100ml.	5000	>1600	IS: 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Chloride as Cl	mg/l, Max	600	20.4	APHA 23rd Edition (4500-Cl - -B), 2017
ii	Sulphate as SO4	mg/l, Max	400	35	APHA 23rd Edition (4500-So42 - -E), 2017
iii	Nitrate as NO3	mg/l, Max	50	3.2	APHA 23rd Edition (4500-NO3 - -E), 2017
iv	Temperature	°c	-	23	APHA ----------
v	Fluoride as F	mg/l, Max	1.5	0.05	APHA 23rd Edition (4500-F - -D,-C), 2017
vi	Total Dissolved Solid	mg/l, Max	1500	100	APHA 23rd Edition (2540 C), 2017
vii	Chemical Oxygen Demand	mg/l, Max	-	16	APHA 23rd Edition (5220 B), 2017
viii	Dissolved Oxygen	mg/l, Max	4.0	6.6	APHA 23rd Edition(4500-O-C), 2017
ix	Biochemical Oxygen Demand(For 3 days 27deg C)	mg/l, Max	--	1.3	APHA 23rd Edition 2012(5210 B), 2017
x	Copper (as Cu)	mg/l, Max	1.5	< 0.02	IS 3025 (Part 42):1992 RA 2009
xi	Iron (as Fe)	mg/l, Max	50	6.5	APHA-23rd Edition (3500-Fe-B , 3111 B) 2017
xii	Manganese (as Mn)	mg/l, Max	--	<0.1	IS 3025 (Part 59):2006 RA 2012
xiii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.002	<0.001	IS 3025 (Part 43):1992 RA 2009
xiv	Selenium (as Se)	mg/l. Max	0.01	<0.01	IS 3025 (Part 56):2003 RA 2009
xv	Zinc (as Zn)	mg/l, Max	15	0.042	IS 3025 (Part 49):1994 RA 2009
xvi	Free Ammonia (as NH3)	mg/l, Max	---	<0.01	APHA-23rd Edition (4500-NH3-B) 2017
xvii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	---	<0.03	APHA-23rd Edition (4500-NH3-B) 2017
xviii	Total Kjeldhal Nitrogen	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-Norg-B) 2017
xix	Total Suspended Soilds	mg/l, Max	---	10	APHA-23rd Edition (2540 D), 2017
xx	Oil & Grease	mg/l, Max	--	<0.025	APHA-23rd Edition (5520 B) 2017
xxi	Total Chromium	mg/l, Max	0.05	<0.01	IS 3025 (Part 52):2003 RA 2009

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Test Report No : 2808 | 5350134EKLPL/9/20/WATER/03011

Parameters		Unit	Requirement	Result	Test Method
xxii	Residual Chlorine	mg/l, Max	---	<0.04	APHA-23rd Edition (4500-Cl-B) 2017
xxiii	Sulphide (as S)	mg/l, Max	---	<0.01	APHA-22nd Edition (4500-S2--F)
xxiv	Anionic Surface Active Agents (as MBAS)	mg/l	--	<0.1	Annex K of IS 13428:2005
xxv	Hexavalent Chromium (as Cr+6)	mg/l, Max	0.05	<0.05	APHA-23rd Edition (3500-Cr-B)2017
xxvi	Dissolved Phosphate (as P)	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-P-D) 2017
PHYSICAL PARAMETER					
i	Color	--	300	11	APHA 23rd Edition (2120 B), 2017
ii	pH Value	--	6.5-8.5	7.4	APHA 23rd Edition (4500-H+-B), 2017
iii	Odour	--	Unobjectionable	AGREEABLE	APHA 23rd Edition (2120 B), 2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.01	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Cyanide (as CN)	mg/l, Max	0.05	<0.02	IS 3025 (Part 27) :1986 RA 2003
iii	Lead (as Pb)	mg/l, Max	0.1	<0.01	IS 3025 (Part 47):1994 RA 2009
iv	Mercury (as Hg)	mg/l, Max	0.001	<0.001	IS 3025 (Part 48):1994 RA 2009
v	Nickel (as Ni)	mg/l, Max	---	<0.01	IS 3025 (Part 54):2003 RA 2009
vi	Arsenic (as As)	mg/l, Max	0.05	<0.01	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

Kalyani Laboratories Pvt. Ltd. BBSR

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TEST REPORT

NABL ULR NO : **TC704320000004943F**

Test Report No : **2809 | 5351134FKLPL/9/20/WATER/03012** *Issue Date:* 19-Sep-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 19-Sep-2020

Sample Description : **SURFACE WATER**

Sample Condition : SEALED

*Sample Identification * :* **SURFACE WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 3 *Place of Collection :*JALPA NALLAH DT-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100ml.	5000	>1600	IS: 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Chloride as Cl	mg/l, Max	600	11.4	APHA 23rd Edition (4500-Cl - -B), 2017
ii	Sulphate as SO4	mg/l, Max	400	20	APHA 23rd Edition (4500-So42 - -E), 2017
iii	Nitrate as NO3	mg/l, Max	50	2.5	APHA 23rd Edition (4500-NO3 - -E), 2017
iv	Temperature	°c	-	23	APHA ----------
v	Fluoride as F	mg/l, Max	1.5	0.24	APHA 23rd Edition (4500-F - -D,-C), 2017
vi	Total Dissolved Solid	mg/l, Max	1500	88	APHA 23rd Edition (2540 C), 2017
vii	Chemical Oxygen Demand	mg/l, Max	-	7	APHA 23rd Edition (5220 B), 2017
viii	Dissolved Oxygen	mg/l, Max	4.0	7	APHA 23rd Edition(4500-O-C), 2017
ix	Biochemical Oxygen Demand(For 3 days 27deg C)	mg/l, Max	--	<1.0	APHA 23rd Edition 2012(5210 B), 2017
x	Copper (as Cu)	mg/l, Max	1.5	<0.01	IS 3025 (Part 42):1992 RA 2009
xi	Iron (as Fe)	mg/l, Max	50	6.2	APHA-23rd Edition (3500-Fe-B , 3111 B) 2017
xii	Manganese (as Mn)	mg/l, Max	--	<0.1	IS 3025 (Part 59):2006 RA 2012
xiii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.002	<0.001	IS 3025 (Part 43):1992 RA 2009
xiv	Selenium (as Se)	mg/l. Max	0.01	<0.01	IS 3025 (Part 56):2003 RA 2009
xv	Zinc (as Zn)	mg/l, Max	15	<0.01	IS 3025 (Part 49):1994 RA 2009
xvi	Free Ammonia (as NH3)	mg/l, Max	---	<0.01	APHA-23rd Edition (4500-NH3-B) 2017
xvii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	---	<0.03	APHA-23rd Edition (4500-NH3-B) 2017
xviii	Total Kjeldhal Nitrogen	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-Norg-B) 2017
xix	Total Suspended Solids	mg/l, Max	---	4	APHA-23rd Edition (2540 D), 2017
xx	Oil & Grease	mg/l, Max	--	<0.025	APHA-23rd Edition (5520 B) 2017
xxi	Total Chromium	mg/l, Max	0.05	<0.01	IS 3025 (Part 52):2003 RA 2009

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Test Report No : 2809 | 5351134FKLPL/9/20/WATER/03012

Parameters		Unit	Requirement	Result	Test Method
xxii	Residual Chlorine	mg/l, Max	---	<0.04	APHA-23rd Edition (4500-Cl-B) 2017
xxiii	Sulphide (as S)	mg/l, Max	---	<0.01	APHA-22nd Edition (4500-S2--F)
xxiv	Anionic Surface Active Agents (as MBAS)	mg/l	--	<0.1	Annex K of IS 13428:2005
xxv	Hexavalent Chromium (as Cr+6)	mg/l, Max	0.05	<0.05	APHA-23rd Edition (3500-Cr-B)2017
xxvi	Dissolved Phosphate (as P)	mg/l, Max	---	<0.1	APHA-23rd Edition (4500-P-D) 2017
PHYSICAL PARAMETER					
i	Color	--	300	7	APHA 23rd Edition (2120 B), 2017
ii	pH Value	--	6.5-8.5	7.5	APHA 23rd Edition (4500-H+-B), 2017
iii	Odour	--	Unobjectionable	AGREEABLE	APHA 23rd Edition (2120 B), 2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.01	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Cyanide (as CN)	mg/l, Max	0.05	<0.02	IS 3025 (Part 27) :1986 RA 2003
iii	Lead (as Pb)	mg/l, Max	0.1	<0.01	IS 3025 (Part 47):1994 RA 2009
iv	Mercury (as Hg)	mg/l, Max	0.001	<0.001	IS 3025 (Part 48):1994 RA 2009
v	Nickel (as Ni)	mg/l, Max	---	<0.01	IS 3025 (Part 54):2003 RA 2009
vi	Arsenic (as As)	mg/l, Max	0.05	<0.01	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

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TEST REPORT

NABL ULR NO : **TC704320000004940F**

Test Report No : **2806 | 5371134CKLPL/9/20/WATER/03032** *Issue Date:* 22-Sep-2020

Amendment No : - *Amendment Date :* -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 22-Sep-2020

Sample Description : **DRINKING WATER (IS 10500:2012)**

Sample Condition : SEALED

*Sample Identification * :* **GROUND WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 3 *Place of Collection :*ML AREA DT-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100 ml	Shall not be detected in any 100 ml sample	<2	IS 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Electrical Conductivity	ms/cm	---	0.235	APHA 22nd Edition (02510B), 2012
ii	Total Dissolved Solid	mg/l, Max	500	150	IS 3025 (PART 16):1984 RA 2002
iii	Sodium	PPM	--	5.0	IS 3025 (PART 45):1993, RA 2003
iv	Calcium (as Ca)	mg/l, Max	75	24	IS 3025 (Part 40):1991 RA 2009
v	Chloride (as Cl)	mg/l, Max	250	18	IS 3025 (Part 32):1988 RA 2009
vi	Copper (as Cu)	mg/l, Max	0.05	<0.02	IS 3025 (Part 42):1992 RA 2009
vii	Fluoride (as F)	mg/l, Max	1	0.12	IS 3025 (Part 60):2008
viii	Free residual chlorine	mg/l, Min	0.2	0.2	IS 3025 (Part 26):1986 RA 2009
ix	Iron (as Fe)	mg/l, Max	1	0.07	IS 3025 (Part 53):2003 RA 2014
x	Magnesium (as Mg)	mg/l, Max	30	13.61	IS 3025 (Part 46):1994 RA 2003
xi	Manganese (as Mn)	mg/l, Max	0.1	<0.05	IS 3025 (Part 59):2006 RA 2012
xii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.001	<0.001	IS 3025 (Part 43):1992 RA 2009
xiii	Selenium (as Se)	mg/l, Max	0.01	<0.005	IS 3025 (Part 56):2003 RA 2009
xiv	Sulphate (as SO4)	mg/l, Max	200	18	IS 3025 (Part 24):1986 RA 2009
xv	Total alkalinity (as CaCO3),	mg/l, Max	200	123	IS 3025 (Part 23):1986 RA 2009
xvi	Total hardness (as CaCO3),	mg/l, Max	200	116	IS 3025 (Part 21):2009
xvii	Zinc (as Zn)	mg/l, Max	5	<0.05	IS 3025 (Part 49):1994 RA 2009
xviii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	0.5	<0.3	APHA-22nd Edition (4500-NH3-B),2012
xix	Total Suspended Soilds	mg/l, Max	--	<0.4	APHA 22nd Edition (2540 D),2012
xx	Oil & Grease	mg/l, Max	---	<0.025	APHA 22nd Edition (5520B),2012
xxi	Chromium Hexavalent	mg/l, Max	---	<0.05	APHA 23rd Edition (3500-CR-B)-2017

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Test Report No : 2806 | 5371134CKLPL/9/20/WATER/03032

Parameters		Unit	Requirement	Result	Test Method
xxii	Total Chromium	mg/l, Max	0.05	<0.02	IS 3025 (PART 52): 2003 RA 2009
xxiii	Nitrite Nitrogen as NO2	mg/l, Max	---	0.9	Cl. 3.0 of IS 3025 (Part 34)
xxiv	Calcium Hardness as CaCO3	mg/l, Max	---	60	APHA-22nd Edition (2340 C),2012
xxv	Aluminum (as Al)	mg/l,Max	0.03	<0.02	IS 3025 (part-55)
xxvi	Boron (as B)	mg/l, Max	0.5	<0.1	Annex H OF IS 13428 : 2005 RA 2009
xxvii	phosphate as (PO4)	mg/l	---	<0.1	APHA 22nd Edition (4500-P-D)
xxviii	Potassium (as K)	mg/l, Max	---	<1.0	APHA 22nd Edition (3500-K-B)
xxix	Magnesium Hardness (as CaCO3)	mg/l,Max	---	56	IS 3025 (Part 46):1994 RA 2003
xxx	Silica	mg/l	--	<0.4	APHA 23rd Edition (4500-SiO2-C) 2017
PHYSICAL PARAMETER					
i	Colour	Hazen, Max	5	<1.0	IS 3025 (Part 4:1983 RA 2012
ii	Odour	--	Agreeable	AGREEABLE	IS 3025 (Part 5):1983 RA 2012
iii	pH value	---	6.5-8.5	6.6	IS 3025 (Part-11):1983, RA 2012
iv	Taste	--	Agreeable	AGREEABLE	IS 3025 (Parts 8):1984 RA 2006
v	Turbidity	NTU, Max	1	0.4	IS 3025 (Part 10):1984 RA 2006
vi	Total Solids	mg/l	--	150	APHA 23rd Edition (4500-SiO2-C)2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.003	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Lead (as Pb)	mg/l, Max	0.01	<0.005	IS 3025 (Part 47):1994 RA 2009
iii	Mercury (as Hg)	mg/l, Max	0.001	<0.0005	IS 3025 (Part 48):1994 RA 2009
iv	Total arsenic (as As)	mg/l, Max	0.01	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

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TEST REPORT

NABL ULR NO : **TC704320000004936F**

Test Report No : **2802 | 53671348KLPL/9/20/WATER/03028** *Issue Date:* 22-Sep-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 22-Sep-2020

Sample Description : **DRINKING WATER (IS 10500:2012)**

Sample Condition : SEALED

*Sample Identification * :* **GROUND WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 3 *Place of Collection :*UNCHABALI VILLAGE DT-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100 ml	Shall not be detected in any 100 ml sample	<2	IS 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Electrical Conductivity	ms/cm	---	0.218	APHA 22nd Edition (02510B), 2012
ii	Total Dissolved Solid	mg/l, Max	500	160	IS 3025 (PART 16):1984 RA 2002
iii	Sodium	PPM	--	4	IS 3025 (PART 45):1993, RA 2003
iv	Calcium (as Ca)	mg/l, Max	75	17.6	IS 3025 (Part 40):1991 RA 2009
v	Chloride (as Cl)	mg/l, Max	250	14	IS 3025 (Part 32):1988 RA 2009
vi	Copper (as Cu)	mg/l, Max	0.05	<0.02	IS 3025 (Part 42):1992 RA 2009
vii	Fluoride (as F)	mg/l, Max	1	0.08	IS 3025 (Part 60):2008
viii	Free residual chlorine	mg/l, Min	0.2	0.2	IS 3025 (Part 26):1986 RA 2009
ix	Iron (as Fe)	mg/l, Max	1	0.12	IS 3025 (Part 53):2003 RA 2014
x	Magnesium (as Mg)	mg/l, Max	30	10.69	IS 3025 (Part 46):1994 RA 2003
xi	Manganese (as Mn)	mg/l, Max	0.1	<0.05	IS 3025 (Part 59):2006 RA 2012
xii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.001	<0.001	IS 3025 (Part 43):1992 RA 2009
xiii	Selenium (as Se)	mg/l, Max	0.01	<0.005	IS 3025 (Part 56):2003 RA 2009
xiv	Sulphate (as SO4)	mg/l, Max	200	10	IS 3025 (Part 24):1986 RA 2009
xv	Total alkalinity (as CaCO3),	mg/l, Max	200	154	IS 3025 (Part 23):1986 RA 2009
xvi	Total hardness (as CaCO3),	mg/l, Max	200	88	IS 3025 (Part 21):2009
xvii	Zinc (as Zn)	mg/l, Max	5	<0.05	IS 3025 (Part 49):1994 RA 2009
xviii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	0.5	<0.3	APHA-22nd Edition (4500-NH3-B),2012
xix	Total Suspended Soilds	mg/l, Max	--	<0.4	APHA 22nd Edition (2540 D),2012
xx	Oil & Grease	mg/l, Max	---	<0.025	APHA 22nd Edition (5520B),2012
xxi	Chromium Hexavalent	mg/l, Max	---	<0.05	APHA 23rd Edition (3500-CR-B),2017

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78/944, PAHALA, BHUBANESWAR-752101, ODISHA

Test Report No : 2802 | 53671348KLPL/9/20/WATER/03028

Parameters		Unit	Requirement	Result	Test Method
xxii	Total Chromium	mg/l, Max	0.05	<0.02	IS 3025 (PART 52): 2003 RA 2009
xxiii	Nitrite Nitrogen as NO2	mg/l, Max	---	0.4	Cl. 3.0 of IS 3025 (Part 34)
xxiv	Calcium Hardness as CaCO3	mg/l, Max	---	44	APHA-22nd Edition (2340 C),2012
xxv	Aluminum (as Al)	mg/l,Max	0.03	<0.02	IS 3025 (part-55)
xxvi	Boron (as B)	mg/l, Max	0.5	<0.1	Annex H OF IS 13428 : 2005 RA 2009
xxvii	phosphate as (PO4)	mg/l	---	<0.1	APHA 22nd Edition (4500-P-D)
xxviii	Potassium (as K)	mg/l, Max	---	<1.0	APHA 22nd Edition (3500-K-B)
xxix	Magnesium Hardness (as CaCO3)	mg/l,Max	---	44	IS 3025 (Part 46):1994 RA 2003
xxx	Silica	mg/l	--	0.25	APHA 23rd Edition (4500-SiO2-C) 2017
PHYSICAL PARAMETER					
i	Colour	Hazen, Max	5	<1.0	IS 3025 (Part 4:1983 RA 2012
ii	Odour	--	Agreeable	AGREEABLE	IS 3025 (Part 5):1983 RA 2012
iii	pH value	---	6.5-8.5	6.9	IS 3025 (Part-11):1983, RA 2012
iv	Taste	--	Agreeable	AGREEABLE	IS 3025 (Parts 8):1984 RA 2006
v	Turbidity	NTU, Max	1	0.5	IS 3025 (Part 10):1984 RA 2006
vi	Total Solids	mg/l	--	160	APHA 23rd Edition (4500-SiO2-C)2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.003	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Lead (as Pb)	mg/l, Max	0.01	<0.005	IS 3025 (Part 47):1994 RA 2009
iii	Mercury (as Hg)	mg/l, Max	0.001	<0.0005	IS 3025 (Part 48):1994 RA 2009
iv	Total arsenic (as As)	mg/l, Max	0.01	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

Kalyani Laboratories Pvt. Ltd. BBSR

KALYANI LABORATORIES PVT. LTD.

Kalyani Laboratories

78/944, PAHALA, BHUBANESWAR-752101, ODISHA

TEST REPORT

NABL ULR NO : **TC704320000004939F**

Test Report No : **2805 | 5370134BKLPL/9/20/WATER/03031** *Issue Date:* 22-Sep-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 22-Sep-2020

Sample Description : **DRINKING WATER (IS 10500:2012)**

Sample Condition : SEALEED

*Sample Identification * :* **GROUND WATER** *Sampling Date :* 04-Sep-2020

Batch No , Lot No : NA *MFG Date :* NA *EXP Date :* NA

Received Quantity : 1LTR X 3 *Place of Collection :*BADLA VILLAGE DT-04.09.2020

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100 ml	Shall not be detected in any 100 ml sample	<2	IS 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Electrical Conductivity	ms/cm	---	0.164	APHA 22nd Edition (02510B), 2012
ii	Total Dissolved Solid	mg/l, Max	500	134	IS 3025 (PART 16):1984 RA 2002
iii	Sodium	PPM	--	3.0	IS 3025 (PART 45):1993, RA 2003
iv	Calcium (as Ca)	mg/l, Max	75	19.2	IS 3025 (Part 40):1991 RA 2009
v	Chloride (as Cl)	mg/l, Max	250	16	IS 3025 (Part 32):1988 RA 2009
vi	Copper (as Cu)	mg/l, Max	0.05	<0.02	IS 3025 (Part 42):1992 RA 2009
vii	Fluoride (as F)	mg/l, Max	1	0.1	IS 3025 (Part 60):2008
viii	Free residual chlorine	mg/l, Min	0.2	0.2	IS 3025 (Part 26):1986 RA 2009
ix	Iron (as Fe)	mg/l, Max	1	<0.05	IS 3025 (Part 53):2003 RA 2014
x	Magnesium (as Mg)	mg/l, Max	30	3.89	IS 3025 (Part 46):1994 RA 2003
xi	Manganese (as Mn)	mg/l, Max	0.1	<0.05	IS 3025 (Part 59):2006 RA 2012
xii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.001	<0.001	IS 3025 (Part 43):1992 RA 2009
xiii	Selenium (as Se)	mg/l, Max	0.01	<0.005	IS 3025 (Part 56):2003 RA 2009
xiv	Sulphate (as SO4)	mg/l, Max	200	18	IS 3025 (Part 24):1986 RA 2009
xv	Total alkalinity (as CaCO3),	mg/l, Max	200	70	IS 3025 (Part 23):1986 RA 2009
xvi	Total hardness (as CaCO3),	mg/l, Max	200	64	IS 3025 (Part 21):2009
xvii	Zinc (as Zn)	mg/l, Max	5	<0.05	IS 3025 (Part 49):1994 RA 2009
xviii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	0.5	<0.3	APHA-22nd Edition (4500-NH3-B),2012
xix	Total Suspended Soilds	mg/l, Max	--	<0.4	APHA 22nd Edition (2540 D),2012
xx	Oil & Grease	mg/l, Max	---	<0.025	APHA 22nd Edition (5520B),2012
xxi	Chromium Hexavalent	mg/l, Max	---	<0.05	APHA 23rd Edition (3500-CR-B):2017

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Test Report No : 2805 | 5370134BKLPL/9/20/WATER/03031

	Parameters	Unit	Requirement	Result	Test Method
xxii	Total Chromium	mg/l, Max	0.05	<0.02	IS 3025 (PART 52): 2003 RA 2009
xxiii	Nitrite Nitrogen as NO2	mg/l, Max	---	0.35	Cl. 3.0 of IS 3025 (Part 34)
xxiv	Calcium Hardness as CaCO3	mg/l, Max	---	48	APHA-22nd Edition (2340 C),2012
xxv	Aluminum (as Al)	mg/l,Max	0.03	<0.02	IS 3025 (part-55)
xxvi	Boron (as B)	mg/l, Max	0.5	<0.1	Annex H OF IS 13428 : 2005 RA 2009
xxvii	phosphate as (PO4)	mg/l	---	<0.1	APHA 22nd Edition (4500-P-D)
xxviii	Potassium (as K)	mg/l, Max	---	<1.0	APHA 22nd Edition (3500-K-B)
xxix	Magnesium Hardness (as CaCO3)	mg/l,Max	---	16	IS 3025 (Part 46):1994 RA 2003
xxx	Silica	mg/l	--	0.35	APHA 23rd Edition (4500-SiO2-C) 2017
PHYSICAL PARAMETER					
i	Colour	Hazen, Max	5	<1.0	IS 3025 (Part 4:1983 RA 2012
ii	Odour	--	Agreeable	AGREEABLE	IS 3025 (Part 5):1983 RA 2012
iii	pH value	---	6.5-8.5	6.8	IS 3025 (Part-11):1983, RA 2012
iv	Taste	--	Agreeable	AGREEABLE	IS 3025 (Parts 8):1984 RA 2006
v	Turbidity	NTU, Max	1	0.3	IS 3025 (Part 10):1984 RA 2006
vi	Total Solids	mg/l	--	134	APHA 23rd Edition (4500-SiO2-C)2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.003	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Lead (as Pb)	mg/l, Max	0.01	<0.005	IS 3025 (Part 47):1994 RA 2009
iii	Mercury (as Hg)	mg/l, Max	0.001	<0.0005	IS 3025 (Part 48):1994 RA 2009
iv	Total arsenic (as As)	mg/l, Max	0.01	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

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TEST REPORT

NABL ULR NO : **TC704320000004937F**

Test Report No : **2803 | 53681349KLPL/9/20/WATER/03029** *Issue Date:* 24-Sep-2020

Amendment No : - *Amendment Date* : -

Reference : UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020

Customer Name : UNCHABALI IRON & MANGANESE MINES

Address : (SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA

Date of receipt : 14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 22-Sep-2020

Sample Description : **DRINKING WATER (IS 10500:2012)**

Sample Condition : SEALED

*Sample Identification * :* **GROUND WATER**

Batch No , Lot No : NA *MFG Date :* NA *Sampling Date :* 04-Sep-2020

Received Quantity : 1LTR X 3 *EXP Date :* NA

Sample Collected By : By GLOBAL TECH ENVIRO EXPERTS PVT.LTD *Place of Collection :*NAYAGARH VILLAGE DT-04.09.2020

Ref.To Sampling Procedure:

Parameters		Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100 ml	Shall not be detected in any 100 ml sample	<2	IS 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Electrical Conductivity	ms/cm	---	0.200	APHA 22nd Edition (02510B), 2012
ii	Total Dissolved Solid	mg/l, Max	500	140	IS 3025 (PART 16):1984 RA 2002
iii	Sodium	PPM	--	2	IS 3025 (PART 45):1993, RA 2003
iv	Calcium (as Ca)	mg/l, Max	75	17.6	IS 3025 (Part 40):1991 RA 2009
v	Chloride (as Cl)	mg/l, Max	250	16	IS 3025 (Part 32):1988 RA 2009
vi	Copper (as Cu)	mg/l, Max	0.05	<0.02	IS 3025 (Part 42):1992 RA 2009
vii	Fluoride (as F)	mg/l, Max	1	0.9	IS 3025 (Part 60):2008
viii	Free residual chlorine	mg/l, Min	0.2	0.2	IS 3025 (Part 26):1986 RA 2009
ix	Iron (as Fe)	mg/l, Max	1	0.13	IS 3025 (Part 53):2003 RA 2014
x	Magnesium (as Mg)	mg/l, Max	30	8.75	IS 3025 (Part 46):1994 RA 2003
xi	Manganese (as Mn)	mg/l, Max	0.1	<0.05	IS 3025 (Part 59):2006 RA 2012
xii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.001	<0.001	IS 3025 (Part 43):1992 RA 2009
xiii	Selenium (as Se)	mg/l, Max	0.01	<0.005	IS 3025 (Part 56):2003 RA 2009
xiv	Sulphate (as SO4)	mg/l, Max	200	13	IS 3025 (Part 24):1986 RA 2009
xv	Total alkalinity (as CaCO3),	mg/l, Max	200	67	IS 3025 (Part 23):1986 RA 2009
xvi	Total hardness (as CaCO3),	mg/l, Max	200	80	IS 3025 (Part 21):2009
xvii	Zinc (as Zn)	mg/l, Max	5	<0.05	IS 3025 (Part 49):1994 RA 2009
xviii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	0.5	<0.3	APHA-22nd Edition (4500-NH3-B),2012
xix	Total Suspended Soilds	mg/l, Max	--	<0.4	APHA 22nd Edition (2540 D),2012
xx	Oil & Grease	mg/l, Max	---	<0.025	APHA 22nd Edition (5520B),2012
xxi	Chromium Hexavalent	mg/l, Max	---	<0.05	APHA 23rd Edition (3500-CR-B),2017

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78/944, PAHALA, BHUBANESWAR-752101, ODISHA

Test Report No : 2803 | 53681349KLPL/9/20/WATER/03029

Parameters		Unit	Requirement	Result	Test Method
xxii	Total Chromium	mg/l, Max	0.05	<0.02	IS 3025 (PART 52): 2003 RA 2009
xxiii	Nitrate Nitrogen as NO3	mg/l, Max	---	0.15	Cl. 3.0 of IS 3025 (Part 34)
xxiv	Calcium Hardness as CaCO3	mg/l, Max	---	44	APHA-22nd Edition (2340 C),2012
xxv	Aluminum (as Al)	mg/l,Max	0.03	<0.02	IS 3025 (part-55)
xxvi	Boron (as B)	mg/l, Max	0.5	<0.1	Annex H OF IS 13428 : 2005 RA 2009
xxvii	phosphate as (PO4)	mg/l	---	<0.1	APHA 22nd Edition (4500-P-D)
xxviii	Potassium (as K)	mg/l, Max	---	<1.0	APHA 22nd Edition (3500-K-B)
xxix	Magnesium Hardness (as CaCO3)	mg/l,Max	---	36	IS 3025 (Part 46):1994 RA 2003
xxx	Silica	mg/l	--	0.22	APHA 23rd Edition (4500-SiO2-C) 2017
PHYSICAL PARAMETER					
i	Colour	Hazen, Max	5	<1.0	IS 3025 (Part 4:1983 RA 2012
ii	Odour	--	Agreeable	AGREEABLE	IS 3025 (Part 5):1983 RA 2012
iii	pH value	---	6.5-8.5	6.6	IS 3025 (Part-11):1983, RA 2012
iv	Taste	--	Agreeable	AGREEABLE	IS 3025 (Parts 8):1984 RA 2006
v	Turbidity	NTU, Max	1	0.8	IS 3025 (Part 10):1984 RA 2006
vi	Total Solids	mg/l	--	140	APHA 23rd Edition (4500-SiO2-C)2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.003	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Lead (as Pb)	mg/l, Max	0.01	<0.005	IS 3025 (Part 47):1994 RA 2009
iii	Mercury (as Hg)	mg/l, Max	0.001	<0.0005	IS 3025 (Part 48):1994 RA 2009
iv	Total arsenic (as As)	mg/l, Max	0.01	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

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TEST REPORT

NABL ULR NO	:	**TC704320000004938F**
Test Report No	:	**2804 | 5369134AKLPL/9/20/WATER/03030** *Issue Date:* 22-Sep-2020
Amendment No	:	- *Amendment Date :* -
Reference	:	UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020
Customer Name	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA
Date of receipt	:	14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 22-Sep-2020
Sample Description	:	**DRINKING WATER (IS 10500:2012)**
Sample Condition	:	SEALED
*Sample Identification * :*		**GROUND WATER** *Sampling Date :* 04-Sep-2020
Batch No , Lot No	:	NA *MFG Date :* NA *EXP Date :* NA
Received Quantity	:	1LTR X 3 *Place of Collection :*KALIMATI VILLAGE DT-04.09.2020
Sample Collected By	:	By GLOBAL TECH ENVIRO EXPERTS PVT.LTD
Ref.To Sampling Procedure:		

Parameters		*Unit*	*Requirement*	*Result*	*Test Method*
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100 ml	Shall not be detected in any 100 ml sample	<2	IS 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Electrical Conductivity	ms/cm	---	0.305	APHA 22nd Edition (02510B), 2012
ii	Total Dissolved Solid	mg/l, Max	500	130	IS 3025 (PART 16):1984 RA 2002
iii	Sodium	PPM	--	3	IS 3025 (PART 45):1993, RA 2003
iv	Calcium (as Ca)	mg/l, Max	75	25.6	IS 3025 (Part 40):1991 RA 2009
v	Chloride (as Cl)	mg/l, Max	250	30	IS 3025 (Part 32):1988 RA 2009
vi	Copper (as Cu)	mg/l, Max	0.05	<0.02	IS 3025 (Part 42):1992 RA 2009
vii	Fluoride (as F)	mg/l, Max	1	0.8	IS 3025 (Part 60):2008
viii	Free residual chlorine	mg/l, Min	0.2	0.2	IS 3025 (Part 26):1986 RA 2009
ix	Iron (as Fe)	mg/l, Max	1	0.8	IS 3025 (Part 53):2003 RA 2014
x	Magnesium (as Mg)	mg/l, Max	30	15.55	IS 3025 (Part 46):1994 RA 2003
xi	Manganese (as Mn)	mg/l, Max	0.1	<0.05	IS 3025 (Part 59):2006 RA 2012
xii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.001	<0.001	IS 3025 (Part 43):1992 RA 2009
xiii	Selenium (as Se)	mg/l, Max	0.01	<0.005	IS 3025 (Part 56):2003 RA 2009
xiv	Sulphate (as SO4)	mg/l, Max	200	10	IS 3025 (Part 24):1986 RA 2009
xv	Total alkalinity (as CaCO3),	mg/l, Max	200	118	IS 3025 (Part 23):1986 RA 2009
xvi	Total hardness (as CaCO3),	mg/l, Max	200	128	IS 3025 (Part 21):2009
xvii	Zinc (as Zn)	mg/l, Max	5	<0.05	IS 3025 (Part 49):1994 RA 2009
xviii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	0.5	<0.3	APHA-22nd Edition (4500-NH3-B),2012
xix	Total Suspended Soilds	mg/l, Max	--	<0.4	APHA 22nd Edition (2540 D),2012
xx	Oil & Grease	mg/l, Max	---	<0.025	APHA 22nd Edition (5520B),2012
xxi	Chromium Hexavalent	mg/l, Max	---	<0.05	APHA 23rd Edition (3500-CR-B):2017

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78/944, PAHALA, BHUBANESWAR-752101, ODISHA

Test Report No : 2804 | 5369134AKLPL/9/20/WATER/03030

Parameters		Unit	Requirement	Result	Test Method
xxii	Total Chromium	mg/l, Max	0.05	<0.02	IS 3025 (PART 52): 2003 RA 2009
xxiii	Nitrite Nitrogen as NO2	mg/l, Max	---	0.2	Cl. 3.0 of IS 3025 (Part 34)
xxiv	Calcium Hardness as CaCO3	mg/l, Max	---	64	APHA-22nd Edition (2340 C),2012
xxv	Aluminum (as Al)	mg/l,Max	0.03	<0.02	IS 3025 (part-55)
xxvi	Boron (as B)	mg/l, Max	0.5	<0.1	Annex H OF IS 13428 : 2005 RA 2009
xxvii	phosphate as (PO4)	mg/l	---	<0.1	APHA 22nd Edition (4500-P-D)
xxviii	Potassium (as K)	mg/l, Max	---	<1.0	APHA 22nd Edition (3500-K-B)
xxix	Magnesium Hardness (as CaCO3)	mg/l,Max	---	64	IS 3025 (Part 46):1994 RA 2003
xxx	Silica	mg/l	--	0.25	APHA 23rd Edition (4500-SiO2-C) 2017
PHYSICAL PARAMETER					
i	Colour	Hazen, Max	5	<1.0	IS 3025 (Part 4:1983 RA 2012
ii	Odour	--	Agreeable	AGREEABLE	IS 3025 (Part 5):1983 RA 2012
iii	pH value	---	6.5-8.5	6.5	IS 3025 (Part-11):1983, RA 2012
iv	Taste	--	Agreeable	AGREEABLE	IS 3025 (Parts 8):1984 RA 2006
v	Turbidity	NTU, Max	1	0.8	IS 3025 (Part 10):1984 RA 2006
vi	Total Solids	mg/l	--	130	APHA 23rd Edition (4500-SiO2-C)2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.003	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Lead (as Pb)	mg/l, Max	0.01	<0.005	IS 3025 (Part 47):1994 RA 2009
iii	Mercury (as Hg)	mg/l, Max	0.001	<0.0005	IS 3025 (Part 48):1994 RA 2009
iv	Total arsenic (as As)	mg/l, Max	0.01	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

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TEST REPORT

NABL ULR NO	:	**TC704320000004941F**
Test Report No	:	**2807 | 5372134DKLPL/9/20/WATER/03033** *Issue Date:* 22-Sep-2020
Amendment No	:	- *Amendment Date :* -
Reference	:	UIMM/IP/ENV/MAY/2020-21/WO/01 DATE: 26.05.2020
Customer Name	:	UNCHABALI IRON & MANGANESE MINES
Address	:	(SMT. INDRANI PATTNAIK)A/6, CIVIL TOWNSHIP, ROURKELA, ODISHA
Date of receipt	:	14-Sep-2020 Test Commenced On : 14-Sep-2020 *Test Completion On:* 22-Sep-2020
Sample Description	:	**DRINKING WATER (IS 10500:2012)**
Sample Condition	:	SEALED
*Sample Identification * :*		**GROUND WATER** *Sampling Date :* 04-Sep-2020
Batch No , Lot No	:	NA *MFG Date :* NA *EXP Date :* NA
Received Quantity	:	1LTR X 3 *Place of Collection :*EMPLOYEE CAMP DT-04.09.2020
Sample Collected By	:	By GLOBAL TECH ENVIRO EXPERTS PVT.LTD
Ref.To Sampling Procedure:		

	Parameters	Unit	Requirement	Result	Test Method
BATERIOLOGICAL QUALITY					
i	Total Coliforms	MPN/100 ml	Shall not be detected in any 100 ml sample	<2	IS 1622:1981 RA 2009
CHEMICAL PARAMETER					
i	Electrical Conductivity	ms/cm	---	0.242	APHA 22nd Edition (02510B), 2012
ii	Total Dissolved Solid	mg/l, Max	500	138	IS 3025 (PART 16):1984 RA 2002
iii	Sodium	PPM	--	1	IS 3025 (PART 45):1993, RA 2003
iv	Calcium (as Ca)	mg/l, Max	75	19.2	IS 3025 (Part 40):1991 RA 2009
v	Chloride (as Cl)	mg/l, Max	250	12	IS 3025 (Part 32):1988 RA 2009
vi	Copper (as Cu)	mg/l, Max	0.05	<0.02	IS 3025 (Part 42):1992 RA 2009
vii	Fluoride (as F)	mg/l, Max	1	0.13	IS 3025 (Part 60):2008
viii	Free residual chlorine	mg/l, Min	0.2	0.2	IS 3025 (Part 26):1986 RA 2009
ix	Iron (as Fe)	mg/l, Max	1	0.06	IS 3025 (Part 53):2003 RA 2014
x	Magnesium (as Mg)	mg/l, Max	30	17.56	IS 3025 (Part 46):1994 RA 2003
xi	Manganese (as Mn)	mg/l, Max	0.1	<0.05	IS 3025 (Part 59):2006 RA 2012
xii	Phenolic compounds (as C6H5OH)	mg/l, Max	0.001	<0.001	IS 3025 (Part 43):1992 RA 2009
xiii	Selenium (as Se)	mg/l, Max	0.01	<0.005	IS 3025 (Part 56):2003 RA 2009
xiv	Sulphate (as SO4)	mg/l, Max	200	10	IS 3025 (Part 24):1986 RA 2009
xv	Total alkalinity (as CaCO3),	mg/l, Max	200	109	IS 3025 (Part 23):1986 RA 2009
xvi	Total hardness (as CaCO3),	mg/l, Max	200	120	IS 3025 (Part 21):2009
xvii	Zinc (as Zn)	mg/l, Max	5	<0.05	IS 3025 (Part 49):1994 RA 2009
xviii	Ammonical Nitrogen (as NH3-N)	mg/l, Max	0.5	<0.3	APHA-22nd Edition (4500-NH3-B),2012
xix	Total Suspended Soilds	mg/l, Max	--	<0.4	APHA 22nd Edition (2540 D),2012
xx	Oil & Grease	mg/l, Max	---	<0.025	APHA 22nd Edition (5520B),2012
xxi	Chromium Hexavalent	mg/l, Max	---	<0.05	APHA 23rd Edition (3500-CR-B),2017

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Test Report No : 2807 | 5372134DKLPL/9/20/WATER/03033

Parameters		Unit	Requirement	Result	Test Method
xxii	Total Chromium	mg/l, Max	0.05	<0.02	IS 3025 (PART 52): 2003 RA 2009
xxiii	Nitrite Nitrogen as NO2	mg/l, Max	---	0.4	Cl. 3.0 of IS 3025 (Part 34)
xxiv	Calcium Hardness as CaCO3	mg/l, Max	---	48	APHA-22nd Edition (2340 C),2012
xxv	Aluminum (as Al)	mg/l,Max	0.03	<0.02	IS 3025 (part-55)
xxvi	Boron (as B)	mg/l, Max	0.5	<0.1	Annex H OF IS 13428 : 2005 RA 2009
xxvii	phosphate as (PO4)	mg/l	---	<0.1	APHA 22nd Edition (4500-P-D)
xxviii	Potassium (as K)	mg/l, Max	---	<1.0	APHA 22nd Edition (3500-K-B)
xxix	Magnesium Hardness (as CaCO3)	mg/l,Max	---	72	IS 3025 (Part 46):1994 RA 2003
xxx	Silica	mg/l	--	0.12	APHA 23rd Edition (4500-SiO2-C) 2017
PHYSICAL PARAMETER					
i	Colour	Hazen, Max	5	<1.0	IS 3025 (Part 4:1983 RA 2012
ii	Odour	--	Agreeable	AGREEABLE	IS 3025 (Part 5):1983 RA 2012
iii	pH value	---	6.5-8.5	6.7	IS 3025 (Part-11):1983, RA 2012
iv	Taste	--	Agreeable	AGREEABLE	IS 3025 (Parts 8):1984 RA 2006
v	Turbidity	NTU, Max	1	0.4	IS 3025 (Part 10):1984 RA 2006
vi	Total Solids	mg/l	--	138	APHA 23rd Edition (4500-SiO2-C)2017
TOXIC SUBSTANCES					
i	Cadmium (as Cd)	mg/l, Max	0.003	<0.001	IS 3025 (Part 41):1992 RA 2009
ii	Lead (as Pb)	mg/l, Max	0.01	<0.005	IS 3025 (Part 47):1994 RA 2009
iii	Mercury (as Hg)	mg/l, Max	0.001	<0.0005	IS 3025 (Part 48):1994 RA 2009
iv	Total arsenic (as As)	mg/l, Max	0.01	<0.001	IS 3025 (Part 37):1988 RA 2009

Remarks : NIL

Any unusual feature observed during determination : NIL

********** End of Test Report **********

Analyised By
For Kalyani Laboratories Pvt. Ltd.

Authorized Signatory
For Kalyani Laboratories Pvt. Ltd

Kalyani Laboratories Pvt. Ltd. BBSR