

NAME OF THE PROJECT:

**MURGABEDA IRON ORE MINES OF
SHRI D. R. PATNAIK**



CLEARANCE LETTER NO. & DATE:

**SEIAA letter no. SEIAA/342, dated.
04.09.2010.**

PERIOD OF COMPLIANCE REPORT:

OCTOBER, 2019 TO MARCH, 2020

MURGABEDA IRON ORE MINES

M/s. D. R. PATNAIK

At - Boneikela, PO - Joda,

Dist. - Keonjhar, Odisha - 758 034

www.miom-drp.com

M/S. D.R. PATNAIK

Mines Owner

(A UNIT OF D.R. PATNAIK & ALTRADE GROUP)

Ref: MIM/DRP/EC/COMP/2020/16

Date: 20.05.2020

The Member Secretary,

State Environment Impact Assessment Authority
Ministry of Environment, Forests & Climate Change,
Government of India,
Qr. No-5RF-2/1, Unit-IX
Bhubaneswar -751 022.
E Mail: seiaaorissa@gmail.com

Sub: Environmental Clearance of Murgabeda Iron Ore Mining Project of Sri D.R. Patnaik. – Regarding six monthly compliance reports for the period October 19 to March 20.

Ref: 1. SEIAA Clearance letter no. SEIAA/342, dated. 04.09.2010
2. MoEF&CC notification no. 4624 (Published in Gazette of India) dt. 26.11.2018

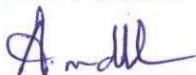
Sir,

With reference to the above cited subject and gazette notification, we are submitting herewith the six monthly compliance report along with the comprehensive data analysis only in soft copy by e –mail of Murgabeda Iron Ore Mines of Sri. D.R Patnaik for the period of October 19 to March 20.

This for your kind information, please.

Yours sincerely,

**For Murgabeda Iron Ore Mine,
Sri. D.R. Patnaik**



Mines Manager

**Mines Manager
Murgabeda Iron Ore Mines
M/s. D. R. Patnaik**

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

Copy to:

1. The Director (S), Regional Office (EZ), Ministry of Environment, Forest & Climate Change, A-31, Chandrasekharpur, Bhubaneswar.
E mail: roez.bsr-mef@nic.in
2. The Zonal Officer, Central Pollution Control Board, Eastern Zonal Office, Kolkata, E mail: zokolkatta.cpcb@nic.in
3. The Chairman, State Pollution Control Board, Orissa, A/118, Nilakantha Nagar, Unit – VIII, Bhubaneswar – 751012,
E mail: paribesh1@ospcboard.ord
4. The Regional Director, Central Ground Water Board, Government of India, South Eastern Region, Bhubaneswar – 751030.
E mail: rdser-cgwb@nic.in

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA

Sl.No	SPECIFIC CONDITIONS	PRESENT STATUS
1	The applicant (Project Proponent) will take necessary measures for prevention, control and mitigation of Air Pollution, water pollution, noise pollution and land pollution including solid waste management as mentioned by him in form-I, final EIA reports and Environment management Plan (EMP) in compliance with prescribed statutory norms and standards	<p>The mine was not in operation since dated 18th April 2010, for want of forest/statutory clearance and has resumed its operation from 23rd November-2019. However, the project proponent has obtained the Forest Clearance Vide letter No. 5-ORC209/2014-BHU dated 05.10.2018. Copy enclosed as Annexure # 01.</p> <p>Adequate measures have been taken by providing retaining wall along with garland drain all around the mines dump areas to prevent mines runoff water to the nearby water bodies. Other necessary measures have also been implemented like gully plugs at regular intervals etc. There are no such OB dumps, the sub grade dumps are stabilized at ear marked area with proper sloping and terracing, for better stabilization. The enclosed photos are witnessing the above. The photo copy of the same is enclosed as photo-1 & 2. Dump details are given in Annexure # 2.</p>
2	The applicant will take necessary steps for socio economic development of the people of the area on need based assessment for providing employment, education, health care, drinking water and sanitation, road and communication facilities. After a detailed primary Socio-Economic survey in core zone and buffer.	Different projects has undertaken in consultation with “ JANASADHANA ” for the socio-economic development of the local people belongs to adjoining villages. A detailed implementation status report of the same is given in Annexure # 3 .
3	The applicant will comply with the points, concerns and issues raised by the people during public hearing on 29th June, 2009 in accordance with the commitments made by him	We have full-filled the commitment regarding the demands raised during the public hearing and compliance are made as per the commitments. All the public hearing issues has been

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	thereon.	complied as per the commitment in phased manner like development of peripheral activities i.e. Development/renovation of the Murga Mahadev temple, guard wall all along Nallah, established environment cell, education, drinking water, road, street light, livelihood etc.
4	The applicant will take statutory clearance/approval/permissions from the concerned authorities in respect of his project as and when required.	Necessary statutory clearances/ approval/ permissions from the concerned authorities have been obtained such as: Consent to Operate from SPCB (Copy attached as Annexure # 04), approved mining plan from IBM (Copy attached as Annexure # 05), Forest clearance from MoEF&CC (Copy attached as Annexure # 01), etc. Wildlife Conservation Plan (Copy attached as Annexure # 6), Forest Clearance Letter (Copy attached to Annexure # 1).
5	For post environmental clearance monitoring, the applicant will submit half-yearly compliance report in respect of the stipulated terms and conditions of this Environmental Clearance to the State Environmental Impact Assessment Authority (SEIAA), Orissa on 1st June and 1st December of each calendar year.	The Half yearly compliance report is being submitted herewith as per the stipulated time period. Earlier submitted details are attached as Annexure # 7 .
6	The core zone should be monitored intensively with no. of stations as prescribed by CPCB, Delhi and unit of pollutant level should be expressed as NAAQ of CPCB, Delhi. The detail methodology adopted for analysis of samples shall be cleared indicated	The mine was not in operation since 18th April 2010, for want of forest/statutory clearance and has resumed its operation from 23rd November-2019. There is provision of monitoring of AAQ in the core as well as buffer zone of the ML area. Monitoring of AAQ used to carry out every month except during monsoon. The monitoring report was carried as per NAAQs

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		notifications made by the CPCB. The monitoring location is enclosed as Annexure # 8.
7	The proponent shall submit ground too thing baseline data on flora & fauna and CSR activities already carried out within three months to the SEIAA.	The site specific Wild Life Conservation Plan has been prepared by Mr. P.K. Sarangi, Rtd. IFS Officer & got approved by PCCF (Wildlife), Chief Wildlife Warden, Odisha. The project has estimated cost of Rs. 38.70 Lakhs which includes cost for both buffer zone i.e. Rs. 25.40 Lakhs and core zone i.e. Rs. 13.30 Lakhs for the conservation and management of wildlife. The project proponent has constructed check dam & check weirs to restrict the mixing of undesired substances in nearby streams & also established guard wall along the sides of Nallahs. The copy of the same is attached as Annexure # 6. A detailed CSR activity on the same got submitted.
8	Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.	There is only one mines pit located in the mines area and the project has maintained the 7.5 m width of safety zone around the ML area and following as per the approved mining plan/scheme.
9	Zero waste mining concept shall be implemented either by putting up palletization plant or disposal of low grade ores/fines to prospective buyers.	Due to the incorporation of better & efficient machineries and latest technologies, it is ensured that zero wastes will be coming out due to the mining activity. Steps have been initiated to work out in this context.
10	The following shall be implemented viz. (a) dump run off should be diverted into setting ponds until it is clear (b) adequate rain water harvesting and ground water recharging facilities should be developed in the core zone, (c) attempt should be made to achieve	<p>a. Dump run off are being diverted to mines pit area and balance quantity is channelized to settling pits with proper checks before disposal to natural water bodies.</p> <p>b. The project has implemented the roof top rain water harvesting</p>

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	zero water balance.	<p>structures and settling pits cum harvesting structures in the mines areas towards recharge of the ground water.</p> <p>c. Steps have been taken to achieve zero water balance like implementation STP for treatment of domestic effluent and reuse of the treated water for mines dust suppression and nearby gardening purposes.</p> <p>The photo of the same is enclosed as Photo 3 & 4</p>
11	Maintenance of roads through which transportation of ores are undertaken shall be carried by the project regularly at its own cost.	The project has black topped the transportation approach village roads along with the other projects and regular maintenance of the main approach road along with the mines haul roads are being carried out. Photo no. - 05.
12	Fugitive dust generation shall be controlled. Fugitive dust emission shall be regularly monitored at locations of nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as applicable) and records shall be submitted to the SEIAA. Orissa.	We have engaged mobile water tanker for sprinkling purpose to avoid fugitive dust generation. Monitoring of AAQ was carried out in different locations of nearest human habitation in consultation with .
13	Transportation of ore shall be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore /dust takes place.	The project has taken steps towards public roads to ensure that the trucks should not be overloaded during transportation; besides these trucks plying outside the mine is ensured to be covered with tarpaulins while transportation of the iron ore.
14	Rain water harvesting shall be undertaken to recharge the ground water source.	In this regard KRG Rain Water foundation, Chennai got engaged in consultation with Regional Director,

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		CGWB, and Bhubaneswar and roof top rain water harvesting structures got implemented towards augmentation of ground water in the camp area. The photo of the same is enclosed above as above photo no. – 03 & 04.
15	Monitoring of ground and surface water quality shall be regularly conducted and records should be maintained and data shall be submitted regularly to SEIAA, Orissa.	Monitoring of the ground water quality at 4 locations namely, Bileipada village, Mahadev Nasa village, Deojhar village, & Village Daldir as well as monitoring of the surface water quality at 5 locations i.e. Baitarini River, Suna Nadi Up-stream, Suna Nadi Down-stream, Mahadev Nallah U/S & Mahadev Nallah D/S being carried out. The records were maintained.
16	The proponent shall ensure that no silt originating due to mining activity is transported in the surface water course. Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo-textile matting or other suitable material, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.	The project has provided necessary precautionary measures like siltation pit towards protection of silt carry over into the nearby surface water bodies followed by retaining walls and garland drains at the toe of the dumps. Apart from that interference like guard wall all across the bank of the Nallah, a length of 380 mtr and check weirs at the strategic locations are provided. The above measures have been taken up to reduce flow of sediments to the 1 st order stream such as Murga Mahadev Nallah and 2nd order streams such as Baitarini River and also other water bodies present in the buffer area. It has been taken based on the rain fall data of past 50 years from the IMD station i.e. Keonjhar and all the sump capacity have been designed by giving 50 % safety margin. The photos regarding the same have been enclosed as photo – 6.

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17	<p>Trenches / garland drains shall be constructed at foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams shall be constructed across seasonal or perennial Nallahs (if any) flowing through the ML area be arrested. De-silting at regular intervals shall be carried out.</p>	<p>We ensure that there should not be any silt materials mixed in nearby Nallah and all. To arrest silt from mines run off, a no. of catch drains and settling cum percolation pits have been constructed around the mines working areas. Nallah protection guard walls have also been constructed across the length of the Nallah. Time to time de-silting is followed before each monsoon. The photo of the same is attached as photo 06 & 07.</p>
18	<p>Provisions shall be made for the housing the labors 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.</p>	<p>There is no such construction activity inside the project area. They are being engaged from the adjoining villages. However, we have provided the site specific STP for treatment of domestic effluents and the treated water is being utilized for adjoining plantation & gardening purposes.</p>
19	<p>Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposure to mineral dust etc. shall be carried out. The proponent shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to respirable mineral dust on the workers shall be conducted and records maintained including health records of the workers. Awareness program for workers on impact of mining on their health and precautionary measures like use of personal</p>	<p>Initial Medical Examination & Periodical Medical Examination of the workers engaged in the project is being undertaken periodically for permanent and outsider employees along with the pre-medical examination of persons employed, who are engaged in the process of mining & are likely exposed to dust to observe any contractions due to exposure to dust. This is being carried as per in compliance to Mines Act 1952 & rules 1956 and amendments there to. The various tests include PFT, X-Ray, and lung spirometry etc. Workers are provided with protective respiratory devices & time to time training on safety & health aspects is being provided. A common full time qualified Occupational health doctor with</p>

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	<p>equipment's etc. shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years or less) shall be conducted followed by follow up action wherever required. Occupational Health center shall be established near the mine site itself.</p>	<p>provision of Occupational Health center has been provided near the mines area along with Deojhar Iron Ore Mines of TMPL.</p>
20	<p>Shelter belt that is wind break of 15 m width and consisting of at least five tiers around the lease facing the human habitation, school/agricultural fields etc. (if any in the vicinity) in the safety zone/backfilled and reclaimed areas, around voids and roads shall be raised. Green belt development and selection of plant species shall be as per CPCB guidelines. Density of the trees has to be around 2500 plants per hectare, herbs and shrubs shall also form a part of afforestation program besides tree plantation. Help and guidance of local DFO may be sought in the matter. Details of year wise afforestation program including rehabilitation of mined out area shall be submitted to the SEIAA, Orissa within six months.</p>	<p>There is no such human habitation/schools etc. within the ML area. However, the project has covered all the sub-grade dumps with application of mixed grass seeds along the slopes to stabilize and also to reduce wash off in case of rains during monsoon.</p> <p>A safety zone of 7.5 m width around the ML boundary is being maintained. In this regard, the project has covered the dumps with application of mixed grass seeds along the slopes to stabilize and also to reduce wash off in case of rains during monsoon.</p> <p>The project has done 19, 100 numbers of saplings in and around the ML area till date in safety zone, & peripheral area of ML. Copy of the same is attached as photo no. 08</p>
21	<p>This environmental clearance is subjected to forest clearance under the Forest (Conservation) Act, 1980.</p>	<p>The lessee has obtained forest clearance over an area of 13.904 ha forest land including 1.214 Ha of safety zone for mining & its allied activities under Forest Conservation Act 1980. Copy of the same is enclosed as Annexure # 1.</p>
22	<p>The mining operation shall be restricted to above ground water</p>	<p>As such mining activity does not intersect ground water table of the</p>

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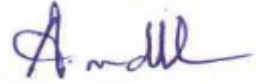
	table and it should not intersect the groundwater table.	area. The Ultimate working depth is 530 AMSL which is far above the ground water level and ground water level exists 510 A MSL. Therefore, intersection of ground water table of the ML area will not occur.
23	The top soil shall temporarily be stored at earmarked site (s) only and it should not be kept unutilized for long (not more than 3 years). The topsoil shall be used for land reclamation and plantation.	There is no generation of the top soil during mining operations. In case of top soil generation generated in future, it will be stored in an earmarked area and necessary precaution will be taken to preserve its nutrient values so that it will be used for land reclamation and raising plantations.
24	The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. Proper terracing of OB dump shall be carried out so that the overall slope shall not exceed 28°. Back filling shall be done as per approved mining plan. Back filling to start from 3rd year onwards of the mining operation and the entire quantity of waste shall be back-filled and liquidated within five years. There shall be no external OB dumps after the 6th year of the mining operations the backfilled area shall be afforested. Back-filling has to be done in a manner that it is restored to the normal ground level. Monitoring and management of Rehabilitated areas should continue till the vegetation is established and becomes self-generating compliance status to be reported to	<p>There is one sub-grade dump which has grade value more than 45 % of Fe i.e. marketable grade. The sub-grades are stacked in an identified area inside ML area by maintaining with proper slope. Dump is also developed with garland drain and retaining wall at the base. Plantation of native species of different varieties of plants of 19, 100 species has been planted till date over waste dumps, safety zone & peripheral area of ML till date. Proper care and survival of vegetation is being carried.</p> <p>As per back filling, monitoring and management of rehabilitated area is concerned, we will abide by the conditions as per the approved mining scheme and progressive mine closer plan. Monitoring and management of rehabilitated areas will be continued until vegetation becomes self-sustaining.</p>

**STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON
ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE
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	the appropriate authorities.	
25	The funds earmarked for the environment protection measures shall be judiciously utilized. Under no circumstances this funds shall be diverted for other purposes. Year wise expenditure for these funds should be reported to the SEIAA, Orissa.	The funds earmarked for environmental protection are being utilized for the same.
26	The critical parameters such as SPM, RSPM, and NO_x in the ambient air within the impact zone, peak particle velocity at 300 m distance or within the nearest habitation, whichever is closure shall be monitored periodically. Further, quality of discharged water shall also be monitored [TDS, DO, pH and total suspended solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The circular no. J 20012/1/2006-1A.II (M) dated 27.05.2009 issued by Ministry of Environment and forest, which is available on the website of the Ministry www.envfor.nic.in shall also be refereed in this regard for its compliance.	All the critical parameters are being monitored like AAQ, Water Quality etc. and the data of the same is being displayed on a display board.
27	A final mine closer plan along with details of Corpus Fund shall be submitted to the SEIAA 5 years in advance of final mine closure for approval.	The Project has submitted a Bank guarantee of Rs. 42, 22, 200 /- for rehabilitation as a part of the management of the mines closure of the Project. It has been approved by IBM in the scheme of mining on 14.03.2018.

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		A final mine closer plan along with detailed corpus fund will be submitted to the ministry of Environment & Forest 5 years in advance of final mine closure for approval.
28	The project proponent shall obtained necessary prior permission of the competent authorities for drawl of requisite quantity of water (Surface water and ground water) required for the project.	The project proponent has already obtained NOC for withdrawal of ground water from Central Ground Water Authority.
29	The above mentioned stipulated conditions shall be complied in time bound manner. Failure to comply with any of the conditions mentioned above may result in withdrawal of this environmental clearance and attract action under the provisions of Environmental Protection (EP) Act, 1986.	We are abiding by the said conditions. We are submitting six monthly EC compliance reports once in a six month as per the schedule. The details have been enclosed as Annexure # 7 .


Authorized Signatory
 Murgabeda Iron Ore Mines,
 Sri. D.R Patnaik

ANNEXURES

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA

Annexure – 1: Forest Clearance



Government of India भारत सरकार
Ministry of Environment, Forest & Climate Change पर्यावरण, वन और जलवायु परिवर्तन विभाग
Eastern Regional Office पूर्वी क्षेत्रीय कार्यालय
A-3, Chandrasekharpur PO, Bhubaneswar
Bhubaneswar - 751 023 भुवनेश्वर - 751 023



Telephone: 0674-2301218, 2301248, 2302452, 2302455. Fax: 0674-2302442. E-mail: esr@moef.gov.in

No.5-ORC209/2014-BIU

5th October, 2018

To

The Addl. Chief Secretary,
Forest & Environment Deptt.,
Govt. of Odisha,
Bhubaneswar.

Sub:-

Diversion of 13.934 ha of forest land including 1.214 ha of forest land for safety zone in Murgabeda Iron Ore Mines in village Deojar of Barbil Tehsil in Keonjhar district, Odisha for mining and allied activities during 1st RML period by Shri D.R. Patnaik.

Sir,

I am directed to refer to State Govt. letter No. 107(Cons)498/2011-9074/F&E dated 16.05.2014, and No.9432/F&E dated 22.05.2014, wherein prior approval of the Ministry of Environment, Forest & Climate Change for diversion of 13.934 ha of forest land including 1.214 ha of forest land for safety zone in Murgabeda Iron Ore Mines in village Deojar of Barbil Tehsil in Keonjhar district, Odisha for mining and allied activities during 1st RML period by Shri D.R. Patnaik, was sought in accordance with Section-2 of the Forest (Conservation) Act, 1980. After due consideration of the proposal by the Ministry of Environment, Forest & Climate Change and on the basis of decision of State Advisory Group meeting held on 29.05.2014, the in-principle approval for diversion of the said forest land was accorded by Ministry vide this office letter of even number dated 05.09.2014, subject to fulfillment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested to grant final approval of the proposal.

2. In this connection, I am directed to say that on the basis of the compliance report furnished by the APCCF (Nodal), Odisha vide their letter No.17465/9F(MG)-18/2005 dated 14.08.2018 and Ad-hoc CAMPA, New Delhi letter No.1-26/2014-CAMPA dated 14.09.2018, *Stage-II/Final* approval of the Ministry of Environment, Forest & Climate Change is hereby granted under Section 2 of the Forest (Conservation) Act, 1980 for diversion of 13.934 ha of forest land including 1.214 ha of forest land for safety zone in Murgabeda Iron Ore Mines in village Deojar of Barbil Tehsil in Keonjhar district, Odisha for mining and allied activities during 1st RML period by Shri D.R. Patnaik. In Jharguda district of Odisha, subject to the fulfillment of the following conditions:-

- i) Legal status of the diverted forest land shall remain unchanged.
- ii) Additional amount of NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India, shall be charged by State Govt. from the user agency.
- iii) Compensatory Afforestation shall be raised over 12.69 ha of non-forest land identified in village Uparirikala under Bangal Tahasil of Keonjhar Forest Division within a period of three years with effect from the date of issue of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation with the State Forest Department at the cost of user agency. The C.A. plots have to be demarcated by rising 4 feet high RCC pillars at a distance of 50 meter with GPS readings noted on each pillar.

Contd...2

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Annexure – 2 : EMP details

Sub-Grade Dump Details			
Sl. No.	Location	Area In Ha.	Material
1	Dump-1 (Near South eastern side of the lease)	0.733	Sub grade ore
2	Dump – 2 (Near pillar no.7)	0.037	Sub grade ore
3	Dump – 3 (On pit benches)	0.235	Sub grade ore

Retaining Wall Details				
Sl. No.	Location	Length	Width	Height
1	Dump – 1 (Near out gate, Nallah side)	58	1.2	2
2	Dump – 3 (Near pillar no.14 to 16)	209	1.2	1.3

Annexure – 3: CSR details

Socio-Economic Development Activities:-

Infrastructure

- Provided materials for Street Light Connections in nearby villages.
- Repairing and black topping of Village Road connecting Road from Deojhar to Murgabeda. Repairing of interior village roads

Education

- The school at village Murgabeda got improved by providing the teaching facility with the appointment of teachers. Renovation of school building & compound wall.
- Additional teachers have been posted in the adjoining villages.
- Distribution of Uniforms, Books, slates, pencil, etc. to the school students.
- Mid-day meal is being provided at free of cost for class 9th & 10th at Deojhar High School.

Reporting Period: October-19 to March-20

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- Facilitating the Independence & Republic Day functions at adjoining schools by funding the entire celebration by extending various tournaments among school children.

Health

- Health-Check-up camp covering adjoining villages and free supply of medicines.
- Extending the Dispensary along with the ambulance facility to local villages with the availability Doctor & Staff and free medicine.

Drinking Water Facility & Sanitation

- 2 No's of deep bore wells got provided at village.
- Regular & periodical supply of drinking water to the adjoining villages with the water tankers.

Other peripheral activities

- Murga Mahadev Temple renovation work (Bathing area has been tiled & guard bars, Cloth changing room, Glazed tiled Bench, etc.) already completed
- Regular maintenance of temple housekeeping, etc.
- Guard wall at the bank of Mahadev –Nalla towards its protection.

Employment Opportunities

- Locals from adjoining villages are engaged in various activities of mines.
- Besides the above Temple maintenance staff comprises 3.No. of Lady Employees are from Local villages.
- Posting of additional teachers in schools from locality.
- Development of self-help groups for villagers is under planning.

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• **Year Wise Expenses**

CSR Expense Details		
		Expenditure (In Lakhs) 2019-20
1	Infrastructure	3.184
2	Education	4.01
3	Health	3.54
4	Drinking Water Facility	0.94
5	Social welfare	1.29
7	Total	12.964

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA

Annexure – 4: Consent to Operate from SPCB



CONSENT ORDER
M. S. D. R. PATNAIK'S IRON ORE MINE AT DEOJHAR, KEONJHAR DIST., ODISHA

Page 2 of 12

BY REGD. POST WITH AQ

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, NBakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560855 E-mail: spc_besb1@spcboard.org, Website: www.spcboard.org

CONSENT ORDER

No. 3544 /IND - I-CON- 223 Dt. 05-04-2019 /

CONSENT ORDER NO. 726

Sub: **Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.**

Ref: Your Online Application No. 2569545 Dated 01.04.2019

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: MURGABEDA IRON ORE MINES OF SRI D. R. PATNAIK

Name of the Occupier & Designation: SRI K. K. MANDAL, MINES MANAGER

Address: AT/PO: DEOJHAR, DIST: KEONJHAR.

This consent order is valid for the period up to 31.03.2020 from the date of issue of this order.

Details of Products Manufactured

Sl. No	Product	Quantity
01.	Iron Ore	2.0 MTPA

Details of Mineral Handling Plants/Units

01	Operation of mobile crushing plant of capacity 2x200 TPH
02.	Operation of mobile screening plants of capacity 2X 200 TPH

This consent order is valid for the specified outlet, discharge quantity and quality specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated herein.

Reporting Period: October-19 to March-20

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA

Annexure - 05: Approved of review of mining plan from IBM



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



REGD. PARCE
Phone: 0674-235248
TeleFax: 0674-235243
E-mail: shubaneswar@ibm.gov
Plot No.149, Paktanip
BHUBANESWAR-75102

No. MS/FM/44-ORI/BHU/2017-18 / 2990

Date: 14.03.2018

To

Shri D R Patnaik, Mine Owner,
At/PO- Baneikala,
Dist – Keonjhar, Odisha- 758034

Sub: Approval of Review of Mining Plan of Murgabeda Iron Ore Mine along with Progressive Mine Closure Plan (PMCP), over an area of 15.378 ha in Keonjhar district of Odisha State, submitted by Shri D R Patnaik under Rule 17 of Mineral Concession Rules, 2016.

Ref: - i) Your letter No. Nil dated 06.02.2018.
ii) This office letter of even no. dated 06.02.2018.
iii) This office letter of even no. dated 06.02.2018 addressed to Director of Mines, Government of Odisha copy endorsed to you.
iv) This office letter of even no. dated 21.02.2018.
v) Your Qualified Person letter No. PMP/IBM/09/2017-18 dated 26.02.2018.

Sir,

In exercise of the power delegated to me vide Gazette Notification No. S.O. 1857(E) dated 18.05.2016, I hereby **Approve** the Review of Mining Plan including Progressive Mine Closure Plan of Murgabeda Iron Ore Mine over an area of 15.378 ha of Shri D R Patnaik in Keonjhar district of Odisha State submitted under Rule 17 of Mineral Concession Rules, 2016. This approval is subject to the following conditions:

- I. The Review of Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
- II. The proposals shown on the plates and/or given in the document is based on the lease map /sketch submitted by the applicant/ lessee and is applicable from the date of approval.
- III. It is clarified that the approval of aforesaid Review of Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.
- IV. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the applicant / lessee.

14/03/18
2990

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA

Annexure # 06: Wildlife Conservation Plan

OFFICE OF THE PRINCIPAL CCF (WILDLIFE) & CHIEF WILDLIFE WARDEN, ORISSA 5TH FLOOR, B.D.A. APARTMENT, PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR- 751012

Memo No. 1242 Dt. 15-2-10
IWL-C-FC-533/08

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

Subj: Approval of Site Specific Wildlife Conservation Plan for Murgabeda Iron Ore Mines by Sri D.R. Patnaik in Keonjhar Forest Division of Keonjhar district

Sir,

I am directed to inform you that the Site Specific Wildlife Conservation Plan for Murgabeda Iron Ore Mines by Sri D.R. Patnaik in Keonjhar Forest Division of Keonjhar district has been approved by P.C.C.(WL) & Chief Wildlife Warden, Orissa with revised financial forecast of Rs.38.70 lakhs for the following activities:

- | | |
|---|-----------------------------|
| 1. For activities to be implemented by User agency in project area | Rs. 13.30 lakhs |
| 2. For activities to be implemented by DFO, Keonjhar division in project impact area. | Rs. 25.40 lakhs |
| | Total Rs.38.70 lakhs |

Various activities in the lease hold area will be executed by User Agency under the guidance of DFO, Keonjhar Division. Rs.25.40 lakhs may be deposited with DFO, Keonjhar division for implementation of various activities with-in the project impact area

Memo No. 1243 dt. 15-2-10

Copy forwarded to the DFO, Keonjhar Division for information & necessary action with reference to Memo No. 3822 dt. 13.10.09 of CF, Keonjhar Circle.

Conservator of Forests (WL)

Memo No. 1244 dt. 15-2-10

Copy forwarded to CF, Rourkela Circle for information & necessary action with reference to his Memo No.3820 dt. 13.10.09

Conservator of Forests (WL)

Memo No. 1245 dt. 15-2-10

Copy forwarded to Sri D.R. Patnaik, Keonjhar, Orissa for information.

Conservator of Forests (WL)

Enc. One no. approved S.S. WL Conservation Plan.

Conservator of Forests (WL)

**STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON
ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE
MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA**

Annexure – 7: EC Compliance submission details

EC Compliance submission Details		
Sl. No.	Period	Date of Submission
1.	October, 2016 to March, 2017	26.05.2017
2.	April, 2016 to September, 2016	19.11.2016
3.	October, 2015 to March, 2016	25.05.2016
4.	April, 2015 to September, 2015	16.11.2015
5.	Oct 2014 to March, 2015	25.05.2015
6.	Apr, 2014 to Sep, 2014	22.11.2014
7.	October 2013 to March 2014	25.05.2014
8.	April 2013 to September 2013	25.11.2013
9.	October 2012 to March 2013	25.05.2013
10.	April 2012 to September 2012	25.11.2012
11.	April 2017 to September 2017	25.11.2017
12.	October 2017 to March-2018	30.05.2018
13.	April to September, 2018	02.11.2019
14.	October, 2018 to March, 2019	25.05.2019
15.	April-19 to September-19	02.11.2019

**STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON
ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE
MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA**

Annexure – 8: AAQ Locations

M/S. D.R. PATNAIK

Mines Owner

(A UNIT OF D.R. PATNAIK & ALTRADE GROUP)

Ref. No.: MIM/SPCB/1074-01

Date: 12.02.2020

The Regional Officer,
Regional Office,
State Pollution Control Board,
Keonjhar, Odisha

Sub: Establishment of AAQ monitoring station for Murgabeda Iron Ore Mines of
Sri D. R. Patnaik – Reg.

Ref. SPCB Consent order no. 726 vide letter no. 1074/IND-I-CON-223 dt.
31.01.2020

Dear Sir,

With reference to the above cited subject, we would like inform you that. The project has already installed 04 numbers of ambient air quality monitoring station, out of which 02 nos. are located inside the mines lease area (Core Zone) and 02 nos. are in the buffer zone area of the project. All the ambient air quantity monitoring stations are installed based on the metrological data, topographical features and environmental sensitive targets. The monitoring parameters are PM₁₀, PM_{2.5}, SO₂, NOx & CO. The details of the AAQ monitoring stations are as follows;

Sl. No.	Sampling Locations	Zone	Station Number
1.	Mines Office	Core Zone	AAQ 1
2.	Near Exit gate (ML Pillar no. 07)	Core Zone	AAQ 2
3.	Village Murgabeda	Buffer Zone	AAQ 3
4.	Village Bileipada	Buffer Zone	AAQ 4

The AAQ station map is enclosed as Annexure # 01.

This is for your kind information, please.

Yours Faithfully
For, Sri. D. R. Patnaik


Mines Manager

Enclosed : As above

Copy to: The Member Secretary, State Pollution Control Board, Parivesh Bhawan, A/115,
Nitskantha Nagar, Unit – VIII, Bhubaneswar – 751012

Reporting Period: October-19 to March-20

PHOTOGRAPHS

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA

PHOTOS



Pic-1- Retaining wall constructed at the base of sub-grade dump



Pic-2- Dump Stabilization with plantation



Pic-3: Settling Pond & Check Dam



Pic-4: Roof top rain water harvesting structure

STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS – “MURGABEDA IRON ORE MINE –PROJECT OF M/S. D. R. PATNAIK” LOCATED NEAR VILLAGE MURGABEDA (THAKURANI R.F.) OF KEONJHAR DIST., ODISHA



Pic-5: Black Topped road for mineral dispatch



Pic-6: Guard wall along the Nallah



Pic-7: Check weir



Pic-8: Plantation of S/z

ENVIRONMENTAL
MONITORING
ANALYSIS REPORT

**B.S. ENVI - TECH PVT. LTD.**

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

REPORT NO: DRP/MIM/ENV/2019/AAQ/2019 -12				Issued to:
Reporting Date	01.01.2020	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Ambient Air Quality				Sri. D.R Patnaik
Location	: Mines Site Office			
Month	: December -2019			
Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	PM ₁₀ [µg/m ³]	PM _{2.5} [µg/m ³]	SO ₂ [µg/m ³]	NO ₂ [µg/m ³]
	Protocol	IS:5182 Part 23	BSET SOP AA-02	IS:5182 Part 2	IS:5182 Part 6
1	02/12/2019	57	25	10.8	11.9
2	03/12/2019	61	33	10.5	11.3
3	09/12/2019	54	29	9.9	12.1
4	10/12/2019	51	27	10.1	10.8
5	16/12/2019	63	30	9.5	10.4
6	17/12/2019	58	28	11.0	12.2
7	23/12/2019	50	24	9.4	11.1
8	24/12/2019	59	19	10.3	11.7
NAAQ Standards (24 hourly standard)		100 [µg/m ³]	60 [µg/m ³]	80 [µg/m ³]	80 [µg/m ³]

Legend:PM₁₀-Particulate Matter(Size Less than 10µm)**PM_{2.5}-Particulate Matter(Size Less than 2.5µm)****SO₂-Sulphur Dioxide****NO₂- NitrogenDioxide**

Authorized Signatory

*Complaints Register is available at Laboratory.



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

REPORT NO: MIM /DRP/ENV/2019/AAQ/2019 -12				Issued to:
Reporting Date	01.01.2020	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Ambient Air Quality				Sri. D.R Patnaik
Location	: Murgabeda Village			
Month	: December-2019			
Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	PM ₁₀ [µg/m ³]	PM _{2.5} [µg/m ³]	SO ₂ [µg/m ³]	NO ₂ [µg/m ³]
	Protocol	IS:5182 Part 23	BSET SOP AA-02	IS:5182 Part 2	IS:5182 Part 6
1	02/12/2019	55	13	7.8	11.2
2	03/12/2019	63	20	8.3	10.4
3	09/12/2019	57	16	11.4	14.4
4	10/12/2019	70	24	13.5	14.6
5	16/12/2019	63	21	10.0	11.2
6	17/12/2019	69	22	12.4	13.8
7	23/12/2019	73	27	10.9	12.2
8	24/12/2019	69	19	12.5	13.8
NAAQ Standards (24 hourly standard)		100 [µg/m ³]	60 [µg/m ³]	80 [µg/m ³]	80 [µg/m ³]

Legend: PM₁₀-Particulate Matter (Size Less than 10µm)

PM_{2.5}-Particulate Matter (Size Less than 2.5µm)

SO₂-Sulphur Dioxide

NO₂- Nitrogen Dioxide

Authorized Signatory



*Complaints Register is available at Laboratory.

4th Floor, 'AMITY VILLE', 12-13-1270/71/73,
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Telangana, India

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Website : www.bsenvitech.com
CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

REPORT NO: MIM/DRP/ENV/2019/AAQ/2019 -12				Issued to:
Reporting Date	01.01.2020	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Ambient Air Quality				Sri. D.R Patnaik
Location	: Boneikala Village			
Month	: December -2019			
Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	PM ₁₀ [µg/m ³]	PM _{2.5} [µg/m ³]	SO ₂ [µg/m ³]	NO ₂ [µg/m ³]
	Protocol	IS:5182 Part 23	BSET SOP AA-02	IS:5182 Part 2	IS:5182 Part 6
1	04/12/2019	68	29	9.9	11.9
2	05/12/2019	73	31	9.7	11.1
3	11/12/2019	77	28	11.6	13.4
4	12/12/2019	69	22	10.2	10.9
5	18/12/2019	61	19	9.4	11.6
6	19/12/2019	55	27	10.7	12.2
7	25/12/2019	63	32	11.4	13.5
8	26/12/2019	74	25	10.0	11.7
NAAQ Standards (24 hourly standard)		100 [µg/m ³]	60 [µg/m ³]	80 [µg/m ³]	80 [µg/m ³]

Legend: PM₁₀-Particulate Matter (Size Less than 10µm)

PM_{2.5}-Particulate Matter (Size Less than 2.5µm)

SO₂-Sulphur Dioxide

NO₂- Nitrogen Dioxide


Authorized Signatory


*Complaints Register is available at Laboratory.

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CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

REPORT NO: MIM /DRP/ENV/2019/FDM/2019 -12				Issued to:
Reporting Date	31.12.2019	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Fugitive Dust Monitoring				Sri. D.R Patnaik
Location	: Mines Face/Bench			
Month	: December-2019			
Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	SPM [$\mu\text{g}/\text{m}^3$]	STANDARD AS PER CFO
1	06/12/2019	274	1200 [$\mu\text{g}/\text{m}^3$]
2	27/12/2019	265	

Legend: SPM-Suspended Particulate Matter


Authorized Signatory


*Complaints Register is available at Laboratory.

4th Floor, 'AMITY VILLE', 12-13-1270/71/73,
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Email : lab@bsenvitech.com, info@bsenvitech.com
Website : www.bsenvitech.com
CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, GoI: Valid upto August, 2022

TEST REPORT

REPORT NO: MIM/DRP/ENV/2019/FDM/2019 -12				Issued to:
Reporting Date	31.12.2019	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of Sri D.R Patnaik
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Fugitive Dust Monitoring Location : Haulage Road Month : December-2019 Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	SPM [$\mu\text{g}/\text{m}^3$]	STANDARD AS PER CFO
1	06/12/2019	210	1200 [$\mu\text{g}/\text{m}^3$]
2	27/12/2019	187	

Legend: SPM-Suspended Particulate Matter


Authorized Signatory



*Complaints Register is available at Laboratory.

4th Floor, 'AMITY VILLE', 12-13-1270/71/73,
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CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

REPORT NO: MIM/DRP/ENV/2019/FDM/2019 -12				Issued to:
Reporting Date	31.12.2019	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Fugitive Dust Monitoring				Sri. D.R Patnaik
Location	: Screen Plant			
Month	: December-2019			
Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	SPM [$\mu\text{g}/\text{m}^3$]	STANDARD AS PER CFO
1	06/12/2019	324	1200 [$\mu\text{g}/\text{m}^3$]
2	27/12/2019	298	

Legend: SPM-Suspended Particulate Matter

Authorized Signatory



*Complaints Register is available at Laboratory.

4th Floor, 'AMITY VILLE', 12-13-1270/71/73,
St. Ann's Road, Tarnaka,
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CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

REPORT NO: MIM/DRP/ENV/2019/FDM/2019 -12				Issued to:
Reporting Date	31.12.2019	Analysis Starting on	01.01.2020	Murgabeda Iron Ore Mines of
Sample Received on	01.01.2020	Analysis Completed on	01.01.2020	
Sample Description: Fugitive Dust Monitoring				Sri. D.R Patnaik
Location	: Ore Storage & Loading Point			
Month	: December-2019			
Sample Collected by: B.S. Envi-Tech (P) Ltd.,				

S.NO	DATE	SPM [$\mu\text{g}/\text{m}^3$]	STANDARD AS PER CFO
1	07/12/2019	197	1200 [$\mu\text{g}/\text{m}^3$]
2	28/12/2019	162	

Legend: SPM-Suspended Particulate Matter


Authorized Signatory


*Complaints Register is available at Laboratory.

4th Floor, 'AMITY VILLE', 12-13-1270/71/73,
St. Ann's Road, Tamaka,
Secunderabad - 500017,
Telangana, India

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CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines of Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-07630	
Sample Description: Waste Water Sample		Lab Code No : 190287012	Issue Date : 03.01.2020
Qty : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample		Your Ref : Letter Dated 23.12.2019	Date of Receipt : 23.12.2019
Packing : Plastic Bottle		Date of Registration	23.12.2019
Test Required : As given below		Date of commencement of testing	24.12.2019
		Date of completion of testing	02.01.2020
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 20.12.2019 Location of Sampling: STP Water At Camp		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	
		Page No: 1 of 1	

TEST RESULTS

S. No	Test Parameters	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
1	pH	---	IS:3025- Part-11	6.81	5.5 - 9.0
2	Oil & Grease	mg/l	IS:3025- Part-39	9	10
3	Total Suspended Solids	mg/l	IS:3025- Part-17	108	100
4	Total Dissolved Solids@105°C	mg/l	IS:3025 - Part-16	1380	2100
5	COD	mg/l	IS:3025 - Part-58	188	250
6	BOD for 3days at 27°C,	mg/l	IS:3025 - Part-44	27	30
7	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	1.72	3
8	Fecal Coliform	MPN/100ml	APHA 23 rd Edition	350	230

Interpretation of results: Nil
Deviation from test method: Nil

*** End of the Report ***


Authorized Signatory
(Venugopal Badri)
Quality Manager



Note: This report is subject to the terms and conditions mentioned overleaf.
Complaints Register is available at Laboratory.

4th Floor, 'AMITY VILLE', 12-13-1270/71/73,
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Secunderabad - 500017,
Telangana, India

Phone : +91 40 49783062 / 27016806 Fax : +91 40 49783063
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Website : www.bsenvitech.com
CIN No. : U74210TG1999PTC032358



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Gol: Valid upto August, 2022

TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04682 Lab Code No : 190581810 Issue Date : 16.10.2019 Your Ref : Letter Dated 07.10.2019 Date of Receipt : 07.10.2019
Sample Description: Surface Water Sample	Date of Registration : 07.10.2019 Date of commencement of testing : 08.10.2019 Date of completion of testing : 15.10.2019 Sample condition at receipt : Found ok Sample tested as received
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology) Packing : Plastic Bottles& Pre-Sterilized Bottle Test Required : As given below	Sampling Details Date of Sampling: 03.10.2019 Location of Sampling: Suna Nadi Upstream Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok

Page No: 1 of 2

TEST RESULTS

S. No	Test Parameters	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
1.	pH	---	IS:3025- Part-11	6.76	5.5 - 9.0
2.	Oil & Grease	mg/l	IS:3025- Part-39	< 1	10
3.	Total Suspended Solids	mg/l	IS:3025- Part-17	64	100
4.	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	156	2100
5.	BOD for 3days at 27°C,	mg/l	IS:3025 - Part-44	9	30
6.	COD	mg/l	IS:3025 - Part-58	52	250
7.	Chloride as Cl,	mg/l	IS:3025 -Part-32	20	1000
8.	Phosphate as P	mg/l	4500 P, E APHA 23 rd Edition 2017	< 0.10	5.0
9.	Sulphide as S ²⁻	mg/l	4500 S ²⁻ , D APHA 23 rd Edition 2017	< 0.10	2.0
10.	Sulphates as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, 23 rd Edition 2017	24	1000
11.	Total Volatile Suspended Solids (MLVSS)	mg/l	IS:3025- Part-18	32	-
12.	Colour	Hazen Units	IS:3025 -Part-4	5	Not to have Colour and Unpleasant Odour
13.	Odour	---	IS:3025 -Part-5	Agreeable	
14.	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.31	3
15.	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.36	2.0

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

Note: This report is subject to the terms and conditions mentioned overleaf.
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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04682	
Sample Description: Surface Water Sample		Lab Code No : 190581810	Issue Date : 16.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)		Your Ref : Letter Dated 07.10.2019	Date of Receipt : 07.10.2019
Packing : Plastic Bottles& Pre-Sterilized Bottle	Test Required : As given below	Date of Registration	07.10.2019
		Date of commencement of testing	08.10.2019
		Date of completion of testing	15.10.2019
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 03.10.2019 Location of Sampling: Suna Nadi Upstream		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
16.	Boron as B	mg/l	4500 B, B APHA 23 rd Edition 2017	< 0.10	2.0
17.	Percent Sodium	-	BSET/SOP/W & WW-26	44.7	-
18.	Residual Sodium Carbonate	mg/l	BSET/SOP/W & WW-25	10	-
19.	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
20.	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
21.	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.05
22.	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5.0
23.	Cadmium as Cd	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.003	2.0
24.	Lead as Pb	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.01	0.1
25.	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.01
26.	Nickel as Ni	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
27.	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.2
28.	Total Chromium as Cr	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
29.	Total Coliforms	CFU/100ml	APHA 23 rd Edition 2017	220	-

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

... End of the Report...

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04683	
Sample Description: Surface Water Sample		Lab Code No : 190581710	Issue Date : 16.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample (Metals) 1 No x 250 ml Sample (Microbiology)		Your Ref : Letter Dated 07.10.2019	Date of Receipt : 07.10.2019
Packing : Plastic Bottles & Pre-Sterilized Bottle	Test Required : As given below	Date of Registration	07.10.2019
		Date of commencement of testing	08.10.2019
		Date of completion of testing	15.10.2019
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 03.10.2019 Location of Sampling: Suna Nadi Downstream		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 1 of 2

TEST RESULTS

S. No	Test Parameters	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
1.	pH	---	IS:3025- Part-11	6.82	5.5 - 9.0
2.	Oil & Grease	mg/l	IS:3025- Part-39	< 1	10
3.	Total Suspended Solids	mg/l	IS:3025- Part-17	70	100
4.	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	174	2100
5.	BOD for 3days at 27°C,	mg/l	IS:3025 - Part-44	12	30
6.	COD	mg/l	IS:3025 - Part-58	68	250
7.	Chloride as Cl,	mg/l	IS:3025 -Part-32	32	1000
8.	Phosphate as P	mg/l	4500 P, E APHA 23 rd Edition 2017	< 0.10	5.0
9.	Sulphide as S ²⁻	mg/l	4500 S ²⁻ , D APHA 23 rd Edition 2017	< 0.10	2.0
10.	Sulphates as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, 23 rd Edition 2017	16	1000
11.	Total Volatile Suspended Solids (MLVSS)	mg/l	IS:3025- Part-18	38	-
12.	Colour	Hazen Units	IS:3025 -Part-4	10	Not to have Colour and Unpleasant Odour
13.	Odour	---	IS:3025 -Part-5	Agreeable	
14.	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.32	3
15.	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.41	2.0

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mine, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04683	
Sample Description: Surface Water Sample		Lab Code No : 190581710	Issue Date : 16.10.2019
		Your Ref : Letter Dated 07.10.2019	Date of Receipt : 07.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology) Packing : Plastic Bottles& Pre-Sterilized Bottle Test Required : As given below	Date of Registration		07.10.2019
	Date of commencement of testing		08.10.2019
	Date of completion of testing		15.10.2019
	Sample condition at receipt		Found ok
	Sample tested as received		
Date of Sampling: 03.10.2019 Location of Sampling: Suna Nadi Downstream		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
16.	Boron as B	mg/l	4500 B, B APHA 23 rd Edition 2017	< 0.10	2.0
17.	Percent Sodium	-	BSET/SOP/W & WW-26	45.2	-
18.	Residual Sodium Carbonate	mg/l	BSET/SOP/W & WW-25	11	-
19.	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
20.	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
21.	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.05
22.	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5.0
23.	Cadmium as Cd	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.003	2.0
24.	Lead as Pb	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.01	0.1
25.	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.01
26.	Nickel as Ni	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
27.	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.2
28.	Total Chromium as Cr	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
29.	Total Coliforms	CFU/100ml	APHA 23 rd Edition 2017	280	-

Interpretation of results: Nil

Deviation from test method: Nil

... End of the Report...


Authorized Signatory
(Venugopal Badri)
Quality Manager

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TEST REPORT

BSET/TR/FORM-56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04684
Sample Description: Surface Water Sample	Lab Code No : 190581610
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)	Issue Date : 16.10.2019
Packing : Plastic Bottles& Pre-Sterilized Bottle	Your Ref : Letter Dated 07.10.2019
Test Required : As given below	Date of Receipt : 07.10.2019
	Date of Registration 07.10.2019
	Date of commencement of testing 08.10.2019
	Date of completion of testing 15.10.2019
	Sample condition at receipt Found ok
	Sample tested as received
Sampling Details	
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1
Location of Sampling: Baitarani river	General Environment conditions: Ok

Page No: 1 of 2

TEST RESULTS

S. No	Test Parameters	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
1.	pH	---	IS:3025- Part-11	6.82	5.5 - 9.0
2.	Oil & Grease	mg/l	IS:3025- Part-39	< 1	10
3.	Total Suspended Solids	mg/l	IS:3025- Part-17	56	100
4.	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	168	2100
5.	BOD for 3days at 27°C,	mg/l	IS:3025 - Part-44	8	30
6.	COD	mg/l	IS:3025 - Part-58	56	250
7.	Chloride as Cl,	mg/l	IS:3025 -Part-32	28	1000
8.	Phosphate as P	mg/l	4500 P, E APHA 23 rd Edition 2017	< 0.10	5.0
9.	Sulphide as S ²⁻	mg/l	4500 S ²⁻ , D APHA 23 rd Edition 2017	< 0.10	2.0
10.	Sulphates as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, 23 rd Edition 2017	14	1000
11.	Total Volatile Suspended Solids (MLVSS)	mg/l	IS:3025- Part-18	22	-
12.	Colour	Hazen Units	IS:3025 -Part-4	5	Not to have Colour and Unpleasant Odour
13.	Odour	---	IS:3025 -Part-5	Agreeable	
14.	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.24	3
15.	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.28	2.0

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mine, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04684 Lab Code No : 190581610 Issue Date : 16.10.2019 Your Ref : Letter Dated 07.10.2019 Date of Receipt : 07.10.2019
Sample Description: Surface Water Sample	Date of Registration : 07.10.2019 Date of commencement of testing : 08.10.2019 Date of completion of testing : 15.10.2019 Sample condition at receipt : Found ok Sample tested as received
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology) Packing : Plastic Bottles& Pre-Sterilized Bottle Test Required : As given below	
Sampling Details	
Date of Sampling: 03.10.2019 Location of Sampling: Baitarani rivcr	Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
16.	Boron as B	mg/l	4500 B, B APHA 23 rd Edition 2017	< 0.10	2.0
17.	Percent Sodium	-	BSET/SOP/W & WW-26	43.1	-
18.	Residual Sodium Carbonate	mg/l	BSET/SOP/W & WW-25	11	-
19.	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
20.	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
21.	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.05
22.	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5.0
23.	Cadmium as Cd	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.003	2.0
24.	Lead as Pb	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.01	0.1
25.	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.01
26.	Nickel as Ni	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
27.	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.2
28.	Total Chromium as Cr	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
29.	Total Coliforms	CFU/100ml	APHA 23 rd Edition 2017	350	-

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

... End of the Report...

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mine, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04685
Sample Description: Surface Water Sample	Lab Code No : 190581510
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)	Issue Date : 16.10.2019
Packing : Plastic Bottles& Pre-Sterilized Bottle	Your Ref : Letter Dated 07.10.2019
Test Required : As given below	Date of Receipt : 07.10.2019
	Date of Registration 07.10.2019
	Date of commencement of testing 08.10.2019
	Date of completion of testing 15.10.2019
	Sample condition at receipt Found ok
	Sample tested as received
Sampling Details	
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1
Location of Sampling: Mahadev Naila Upstream	General Environment conditions: Ok

Page No: 1 of 2

TEST RESULTS

S. No	Test Parameters	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
1.	pH	---	IS:3025- Part-11	6.76	5.5 - 9.0
2.	Oil & Grease	mg/l	IS:3025- Part-39	< 1	10
3.	Total Suspended Solids	mg/l	IS:3025- Part-17	64	100
4.	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	152	2100
5.	BOD for 3days at 27°C,	mg/l	IS:3025 - Part-44	8	30
6.	COD	mg/l	IS:3025 - Part-58	52	250
7.	Chloride as Cl ₁	mg/l	IS:3025 -Part-32	28	1000
8.	Phosphate as P	mg/l	4500 P, E APHA 23 rd Edition 2017	< 0.10	5.0
9.	Sulphide as S ²⁻	mg/l	4500 S ²⁻ , D APHA 23 rd Edition 2017	< 0.10	2.0
10.	Sulphates as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, 23 rd Edition 2017	20	1000
11.	Total Volatile Suspended Solids (MLVSS)	mg/l	IS:3025- Part-18	26	-
12.	Colour	Hazen Units	IS:3025 -Part-4	5	Not to have Colour and Unpleasant Odour
13.	Odour	---	IS:3025 -Part-5	Agreeable	
14.	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.25	3
15.	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.29	2.0

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mine, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04685	
Sample Description: Surface Water Sample		Lab Code No : 190581510	
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample (Metals) 1 No x 250 ml Sample (Microbiology)		Issue Date : 16.10.2019	
Packing : Plastic Bottles & Pre-Sterilized Bottle		Your Ref : Letter Dated 07.10.2019	
Test Required : As given below		Date of Receipt : 07.10.2019	
		Date of Registration	07.10.2019
		Date of commencement of testing	08.10.2019
		Date of completion of testing	15.10.2019
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 03.10.2019		Sampling Method/Procedure: IS 3025 Part 1	
Location of Sampling: Mahadev Nalla Upstream		General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
16.	Boron as B	mg/l	4500 B, B APHA 23 rd Edition 2017	< 0.10	2.0
17.	Percent Sodium	-	BSET/SOP/W & WW-26	44.3	-
18.	Residual Sodium Carbonate	mg/l	BSET/SOP/W & WW-25	Nil	-
19.	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
20.	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
21.	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.05
22.	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5.0
23.	Cadmium as Cd	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.003	2.0
24.	Lead as Pb	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.01	0.1
25.	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.01
26.	Nickel as Ni	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
27.	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.2
28.	Total Chromium as Cr	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
29.	Total Coliforms	CFU/100ml	APHA 23 rd Edition 2017	280	-

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager



... End of the Report...

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04686	
Sample Description: Surface Water Sample	Lab Code No : 190581410	
	Issue Date : 16.10.2019	
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)	Your Ref : Letter Dated 07.10.2019	
	Date of Receipt : 07.10.2019	
Packing : Plastic Bottles& Pre-Sterilized Bottle	Date of Registration	07.10.2019
	Date of commencement of testing	08.10.2019
Test Required : As given below	Date of completion of testing	15.10.2019
	Sample condition at receipt	Found ok
Sample tested as received		
Sampling Details		
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1	
Location of Sampling: Mahadev Nalla Downstream	General Environment conditions: Ok	

Page No: 1 of 2

TEST RESULTS

S. No	Test Parameters	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
1.	pH	---	IS:3025- Part-11	6.83	5.5 - 9.0
2.	Oil & Grease	mg/l	IS:3025- Part-39	< 1	10
3.	Total Suspended Solids	mg/l	IS:3025- Part-17	76	100
4.	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	174	2100
5.	BOD for 3days at 27°C,	mg/l	IS:3025 - Part-44	12	30
6.	COD	mg/l	IS:3025 - Part-58	68	250
7.	Chloride as Cl ₁ ,	mg/l	IS:3025 -Part-32	36	1000
8.	Phosphate as P	mg/l	4500 P, E APHA 23 rd Edition 2017	< 0.10	5.0
9.	Sulphide as S ²⁻	mg/l	4500 S ²⁻ , D APHA 23 rd Edition 2017	< 0.10	2.0
10.	Sulphates as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, 23 rd Edition 2017	24	1000
11.	Total Volatile Suspended Solids (MLVSS)	mg/l	IS:3025- Part-18	32	-
12.	Colour	Hazen Units	IS:3025 -Part-4	10	Not to have Colour and Unpleasant Odour
13.	Odour	---	IS:3025 -Part-5	Agreeable	
14.	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.28	3
15.	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.32	2.0

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

Note: This report is subject to the terms and conditions mentioned overleaf.
Complaints Register is available at Laboratory.

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04686	
Sample Description: Surface Water Sample	Lab Code No : 190581410	
	Issue Date : 16.10.2019	
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)	Your Ref : Letter Dated 07.10.2019	
	Date of Receipt : 07.10.2019	
Packing : Plastic Bottles& Pre-Sterilized Bottle	Date of Registration	07.10.2019
	Date of commencement of testing	08.10.2019
Test Required : As given below	Date of completion of testing	15.10.2019
	Sample condition at receipt	Found ok
Sample tested as received		
Sampling Details		
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1	
Location of Sampling: Mahadev Nalla Downstream	General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	General Standards for discharge of Environment pollutants G.S.R 422(E)-1993
16.	Boron as B	mg/l	4500 B, B APHA 23 rd Edition 2017	< 0.10	2.0
17.	Percent Sodium	-	BSET/SOP/W & WW-26	45.8	-
18.	Residual Sodium Carbonate	mg/l	BSET/SOP/W & WW-25	Nil	-
19.	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
20.	Manganesec as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
21.	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.05
22.	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5.0
23.	Cadmium as Cd	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.003	2.0
24.	Lead as Pb	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.01	0.1
25.	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.01
26.	Nickel as Ni	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	3.0
27.	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.2
28.	Total Chromium as Cr	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	2.0
29.	Total Coliforms	CFU/100ml	APHA 23 rd Edition 2017	350	-

Interpretation of results: Nil

Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality Manager

... End of the Report...

Note: This report is subject to the terms and conditions mentioned overleaf.
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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04676
Sample Description: Ground Water Sample	Lab Code No : 190582410
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)	Issue Date : 16.10.2019
Packing : Plastic Bottles& Pre-Sterilized Bottle	Your Ref : Letter Dated 07.10.2019
Test Required : As given below	Date of Receipt : 07.10.2019
	Date of Registration 07.10.2019
	Date of commencement of testing 08.10.2019
	Date of completion of testing 15.10.2019
	Sample condition at receipt Found ok
	Sample tested as received
Sampling Details	
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1
Location of Sampling: Murgabeda Village	General Environment conditions: Ok

Page No: 1 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
1	Odour	--	IS:3025 -Part-5	Agreeable	Agreeable	Agreeable
2	Colour	Hazen Units	IS:3025 -Part-4	< 5	5	15
3	pH	--	IS:3025- Part-11	6.89	6.5-8.5	No Relaxation
4	Turbidity	NTU	IS:3025 -Part-10	< 1	1	5
5	Total Hardness as CaCO ₃	mg/l	IS:3025 -Part-21	44	200	600
6	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.06	1.0	No Relaxation
7	Chlorides as Cl	mg/l	IS:3025 -Part-32	22	250	1000
8	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	100	500	2000
9	Calcium as Ca	mg/l	IS:3025- Part-40	9.6	75	200
10	Magnesium as Mg	mg/l	IS:3025 -Part-46	4.9	30	100
11	Sulphate as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, APHA 23 rd Edition 2017	8.8	200	400
12	Nitrate as NO ₃	mg/l	4500-NO ₃ B Ultraviolet Spectrophotometric Screening Method	5.4	45	No Relaxation
13	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.19	1	1.5
14	Total Alkalinity as CaCO ₃	mg/l	IS:3025 -Part-23	30	200	600

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04676
	Lab Code No : 190582410
	Issue Date : 16.10.2019
	Your Ref : Letter Dated 07.10.2019
Sample Description: Ground Water Sample	Date of Receipt : 07.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample (Metals) 1 No x 250 ml Sample (Microbiology)	Date of Registration 07.10.2019
Packing : Plastic Bottles & Pre-Sterilized Bottle	Date of commencement of testing 08.10.2019
Test Required : As given below	Date of completion of testing 15.10.2019
	Sample condition at receipt Found ok
	Sample tested as received
Sampling Details	
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1
Location of Sampling: Murgabeda Village	General Environment conditions: Ok

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
15	Boron as B	mg/l	4500-B B. Curcumin Method, APHA 23 rd Edition 2017	< 0.10	0.5	1
16	Aluminium as Al	mg/l	3500 Al B - Erochrome Cyanine R method	< 0.02	0.03	0.2
17	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.05	1.5
18	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.1	0.3
19	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
20	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5	15
21	Cadmium as Cd	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.003	0.003	No Relaxation
22	Lead as Pb	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
23	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.001	No Relaxation
24	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
25	Total Chromium as Cr	mg/l	3111 C of AOPHA 23 rd Edition 2017	< 0.02	0.05	No Relaxation
26	Total Coliforms	CFU/100ml	IS: 1622 - 1981	Absent	-	-

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

... End of the Report...

Note: This report is complete to the terms and conditions mentioned overleaf.

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04677	
Sample Description: Ground Water Sample		Lab Code No : 190582310	Issue Date : 16.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)		Date of Registration	07.10.2019
Packing : Plastic Bottles & Pre-Sterilized Bottle		Date of commencement of testing	08.10.2019
Test Required : As given below		Date of completion of testing	15.10.2019
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 03.10.2019 Location of Sampling: Daldir Village		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 1 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
1	Odour	--	IS:3025 -Part-5	Agreeable	Agreeable	Agreeable
2	Colour	Hazen Units	IS:3025 -Part-4	< 5	5	15
3	pH	--	IS:3025- Part-11	6.87	6.5-8.5	No Relaxation
4	Turbidity	NTU	IS:3025 -Part-10	< 1	1	5
5	Total Hardness as CaCO ₃	mg/l	IS:3025 -Part-21	220	200	600
6	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.09	1.0	No Relaxation
7	Chlorides as Cl	mg/l	IS:3025 -Part-32	68	250	1000
8	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	474	500	2000
9	Calcium as Ca	mg/l	IS:3025- Part-40	60	75	200
10	Magnesium as Mg	mg/l	IS:3025 -Part-46	17	30	100
11	Sulphate as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, APHA 23 rd Edition 2017	19	200	400
12	Nitrate as NO ₃	mg/l	4500-NO ₃ B Ultraviolet Spectrophotometric Screening Method	9.4	45	No Relaxation
13	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.48	1	1.5
14	Total Alkalinity as CaCO ₃	mg/l	IS:3025 -Part-23	242	200	600

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04677 Lab Code No : 190582310 Issue Date : 16.10.2019 Your Ref : Letter Dated 07.10.2019
Sample Description: Ground Water Sample	Date of Receipt : 07.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample (Metals) 1 No x 250 ml Sample (Microbiology)	Date of Registration 07.10.2019 Date of commencement of testing 08.10.2019 Date of completion of testing 15.10.2019
Packing : Plastic Bottles & Pre-Sterilized Bottle	Sample condition at receipt Found ok
Test Required : As given below	Sample tested as received
Sampling Details Date of Sampling: 03.10.2019 Location of Sampling: Daldir Village Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
15	Boron as B	mg/l	4500-B B. Curcumin Method, APHA 23 rd Edition 2017	< 0.10	0.5	1
16	Aluminium as Al	mg/l	3500 Al B - Eroochrome Cyanine R method	< 0.02	0.03	0.2
17	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.05	1.5
18	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.1	0.3
19	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
20	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5	15
21	Cadmium as Cd	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.003	0.003	No Relaxation
22	Lead as Pb	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
23	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.001	No Relaxation
24	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
25	Total Chromium as Cr	mg/l	3111 C of AOPHA 23 rd Edition 2017	< 0.02	0.05	No Relaxation
26	Total Coliforms	CFU/100ml	IS: 1622 - 1981	Absent		-

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

*** End of the Report ***

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04679
Sample Description: Ground Water Sample	Lab Code No : 190582110
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)	Issue Date : 16.10.2019
Packing : Plastic Bottles& Pre-Sterilized Bottle	Your Ref : Letter Dated 07.10.2019
Test Required : As given below	Date of Receipt : 07.10.2019
Sampling Details	
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1
Location of Sampling: Deojhar Village	General Environment conditions: Ok
Page No: 1 of 2	

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
1	Odour	--	IS:3025 -Part-5	Agreeable	Agreeable	Agreeable
2	Colour	Hazen Units	IS:3025 -Part-4	< 5	5	15
3	pH	--	IS:3025- Part-11	6.84	6.5-8.5	No Relaxation
4	Turbidity	NTU	IS:3025 -Part-10	< 1	1	5
5	Total Hardness as CaCO ₃	mg/l	IS:3025 -Part-21	210	200	600
6	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.09	1.0	No Relaxation
7	Chlorides as Cl	mg/l	IS:3025 -Part-32	32	250	1000
8	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	374	500	2000
9	Calcium as Ca	mg/l	IS:3025- Part-40	48	75	200
10	Magnesium as Mg	mg/l	IS:3025 -Part-46	21.9	30	100
11	Sulphate as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, APHA 23 rd Edition 2017	15	200	400
12	Nitrate as NO ₃	mg/l	4500-NO ₃ B Ultraviolet Spectrophotometric Screening Method	9.8	45	No Relaxation
13	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.42	1	1.5
14	Total Alkalinity as CaCO ₃	mg/l	IS:3025 -Part-23	220	200	600

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04679	
Sample Description: Ground Water Sample		Lab Code No : 190582110	Issue Date : 16.10.2019
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample (Metals) 1 No x 250 ml Sample (Microbiology)		Your Ref : Letter Dated 07.10.2019	Date of Receipt : 07.10.2019
Packing : Plastic Bottles & Pre-Sterilized Bottle		Date of Registration	07.10.2019
Test Required : As given below		Date of commencement of testing	08.10.2019
		Date of completion of testing	15.10.2019
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 03.10.2019 Location of Sampling: Deojhar Village		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
15	Boron as B	mg/l	4500-B B. Curcumin Method, APHA 23 rd Edition 2017	< 0.10	0.5	1
16	Aluminium as Al	mg/l	3500 A1 B - Erochrome Cyanine R method	< 0.02	0.03	0.2
17	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.05	1.5
18	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.1	0.3
19	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
20	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5	15
21	Cadmium as Cd	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.003	0.003	No Relaxation
22	Lead as Pb	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
23	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.001	No Relaxation
24	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
25	Total Chromium as Cr	mg/l	3111 C of AOPHA 23 rd Edition 2017	< 0.02	0.05	No Relaxation
26	Total Coliforms	CFU/100ml	IS: 1622 - 1981	Absent	-	-

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Vennugopal Badri)
Quality manager

*** End of the Report***

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TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik	Test Report No. : BSET/19-20/TR-04680	
Sample Description: Ground Water Sample	Lab Code No : 190582010	
	Issue Date : 16.10.2019	
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology) Packing : Plastic Bottles& Pre-Sterilized Bottle Test Required : As given below	Your Ref : Letter Dated 07.10.2019	
	Date of Receipt : 07.10.2019	
	Date of Registration	07.10.2019
	Date of commencement of testing	08.10.2019
	Date of completion of testing	15.10.2019
	Sample condition at receipt	Found ok
	Sample tested as received	
Sampling Details		
Date of Sampling: 03.10.2019	Sampling Method/Procedure: IS 3025 Part 1	
Location of Sampling: Bileipada Village	General Environment conditions: Ok	

Page No: 1 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
1	Odour	--	IS:3025 -Part-5	Agreeable	Agreeable	Agreeable
2	Colour	Hazen Units	IS:3025 -Part-4	< 5	5	15
3	pH	--	IS:3025- Part-11	6.75	6.5-8.5	No Relaxation
4	Turbidity	NTU	IS:3025 -Part-10	< 1	1	5
5	Total Hardness as CaCO ₃	mg/l	IS:3025 -Part-21	250	200	600
6	Iron as Fe	mg/l	3111 B of APHA 23 rd Edition 2017	0.11	1.0	No Relaxation
7	Chlorides as Cl	mg/l	IS:3025 -Part-32	65	250	1000
8	Total Dissolved Solids @ 105°C, mg/l	mg/l	IS:3025 - Part-16	374	500	2000
9	Calcium as Ca	mg/l	IS:3025- Part-40	72	75	200
10	Magnesium as Mg	mg/l	IS:3025 -Part-46	17.0	30	100
11	Sulphate as SO ₄	mg/l	4500-SO ₄ E, Turbidity Method, APHA 23 rd Edition 2017	42	200	400
12	Nitrate as NO ₃	mg/l	4500-NO ₃ B Ultraviolet Spectrophotometric Screening Method	28	45	No Relaxation
13	Fluoride as F ⁻	mg/l	4500-F D, APHA 23 rd Edition 2017	0.45	1	1.5
14	Total Alkalinity as CaCO ₃	mg/l	IS:3025 -Part-23	130	200	600

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

Note: This report is subject to the terms and conditions mentioned overleaf.



B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, Govt: Valid upto August, 2022

TEST REPORT

BSET/TR/FORM -56

Name & Address of the Customer : Murgabeda Iron Ore Mines, Sri D.R Patnaik		Test Report No. : BSET/19-20/TR-04680	
Sample Description: Ground Water Sample		Lab Code No : 190582010	
Quantity : 1 No. x 2.0 Ltrs Sample 1 No. x 500 ml Sample(Metals) 1 No x 250 ml Sample (Microbiology)		Issue Date : 16.10.2019	
Packing : Plastic Bottles& Pre-Sterilized Bottle		Your Ref : Letter Dated 07.10.2019	
Test Required : As given below		Date of Receipt : 07.10.2019	
		Date of Registration	07.10.2019
		Date of commencement of testing	08.10.2019
		Date of completion of testing	15.10.2019
		Sample condition at receipt	Found ok
		Sample tested as received	
Date of Sampling: 03.10.2019 Location of Sampling: Bileipada Village		Sampling Details Sampling Method/Procedure: IS 3025 Part 1 General Environment conditions: Ok	

Page No: 2 of 2

TEST RESULTS

S. No.	Test Parameter	Units	Test Method	Result	Requirement as per IS 10500:2012	
					Acceptable limits	Permissible limits in absence of alternative source
15	Boron as B	mg/l	4500-B B. Curcumin Method, APHA 23 rd Edition 2017	< 0.10	0.5	1
16	Aluminium as Al	mg/l	3500 Al B - Erochrome Cyanine R method	< 0.02	0.03	0.2
17	Copper as Cu	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.05	1.5
18	Manganese as Mn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	0.1	0.3
19	Selenium as Se	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
20	Zinc as Zn	mg/l	3111 B of APHA 23 rd Edition 2017	< 0.02	5	15
21	Cadmium as Cd	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.003	0.003	No Relaxation
22	Lead as Pb	mg/l	3111 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
23	Mercury as Hg	mg/l	3112 B of APHA 23 rd Edition 2017	< 0.001	0.001	No Relaxation
24	Total Arsenic as As	mg/l	3114 C of APHA 23 rd Edition 2017	< 0.01	0.01	No Relaxation
25	Total Chromium as Cr	mg/l	3111 C of A0PHA 23 rd Edition 2017	< 0.02	0.05	No Relaxation
26	Total Coliforms	CFU/100ml	IS: 1622 - 1981	Absent	-	-

Interpretation of results: Nil
Deviation from test method: Nil


Authorized Signatory
(Venugopal Badri)
Quality manager

... End of the Report...

Note: This report is subject to the terms and conditions mentioned overleaf.