



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड  
STEEL AUTHORITY OF INDIA LIMITED

भिलाई इस्पात संयंत्र  
BHILAI STEEL PLANT

No. Mines/IOC/DMM/STE/2021/ 503

Dated: 27/12/2021

To,

**1. Additional Director**

Ministry of Environment, Forest and Climate Change  
Government of India, Paryavaran Bhavan,  
C.G.O Complex, Lodhi Road, New Delhi - 110 003.

**2. Director**

Central Pollution Control Board,  
Parivesh Bhawan, CBD-cum-Office Complex  
East Arjun Nagar, New Delhi - 110 032.

**3. Additional Principal Chief Conservator of Forests (C),**

Ministry of Environment, Forest and Climate Change,  
Regional Office (WCZ), Ground Floor, East Wing,  
New Secretariat Building Civil Lines, Nagpur-44000.

**4. Member secretary**

CECB  
Commercial Complex, Chhattisgarh Housing Board Colony,  
Kabir Nagar, Raipur (C.G.)

Dear Sir,

**Sub: Status of Compliance to the Environmental Clearance Conditions in respect of enhancement of Ore processing/beneficiation capacity from 9.55 million TPA to 14 million TPA in Rajhara Hills of M/s Steel Authority of India Limited (SAIL), located at District Durg, Chhattisgarh for the period April'2021 to September'2021.**

Ref: EC for Enhancement of Ore processing/beneficiation capacity from 9.55 million TPA to 14 million TPA in Rajhara Hill vide letter no. J-11015/349/2009-IA.II (M) dated: 30th September, 2013.

With reference to the above cited subject, the six month compliance report to the Environmental Clearance Conditions in respect of enhancement of Ore processing/beneficiation capacity from 9.55 million TPA to 14 million TPA in Rajhara Hills of M/s Steel Authority of India Limited (SAIL), located at District Durg, Chhattisgarh for the period April'2021 to September'2021 is enclosed herewith as Annexure-1 for your kind perusal please.

Thanking you,

Yours faithfully  
For Steel Authority of India Ltd.  
Bhilai Steel Plant

Encl: Compliance Report as above.

(P.M. Shirpurkar)  
General Manager I/c cum Agent  
Dalli Mechanised Mine

## Annexure-1

Six monthly Compliance Report with respect to the conditions stipulated in the Environmental clearance granted by MOEF& CC for enhancement of Ore processing/beneficiation capacity from 9.55 million TPA to 14 million TPA in Rajhara Hills by M/s Steel Authority of India Limited (SAIL), located at District Durg, Chhattisgarh for the period from APRIL 2021 to SEPTEMBER'2021.

Ref: MOEF letter no. J-11015/349/2009-IA.II (M) Dated: 30th September, 2013

### A. Specific Conditions.

Sl.No	Conditions	Compliance
i.	No Iron Ore Processing/beneficiation activities will be allowed in forest area for which the Forest Clearance is not available.	Agreed. The Processing/beneficiation activities are proposed in the revenue land and within the lease hold area. Existing ore processing /beneficiation activities are within the acquired revenue land.
ii.	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.	In the core zone, no wildlife animal has been reported as schedule I as per the wildlife protection Act 1972.
iii.	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Chhattisgarh and effectively implement all the conditions stipulated therein.	Consent to Establish (CTE) has been granted by CECB vide letter No.4645/TS/CECB/2017 dated 29.11.2017 and Consent to operate with respect to the existing operations has been granted by CECB vide No. 10797/TS/CECB/2021 Nava Raipur Atal Nagar, Dated: 08/03/2021 and Valid for the period from 01/04/2021 to 31/03/2024.
iv.	As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.	The air samples shall be analysed for their mineralogical composition and records would be maintained during operational phase of the project.  For existing facilities, ambient air quality monitoring stations have been established at 4 locations in core zone and buffer zone and all the monitoring records are being maintained and reports are regularly sent to State Pollution Control Board.(ANNEXURE – 1A)
v.	The beneficiated ore shall be transported to railway sidings only through closed conveyor	Existing railway siding is adjacent to ore processing /beneficiation plant. Therefore beneficiated ore does not required further transportation. Beneficiation facilities are fully covered to prevent flow of dust into ambient atmosphere.
vi.	Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Adequate number of high efficiency dust extraction system will be provided and would be properly maintained and operated. For existing facilities at all the transfer points there is a pressurized Dust suppression system is in place and Dust Extraction system is also operational in our existing Mineral handling Plants.

Sl.No	Conditions	Compliance
vii	Effective safeguard measures such as conditioning of ore with water, 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. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling will be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around the crushing and screening plant, loading and unloading point and transfer points. It will be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.  For existing facilities there is a network of Pressurized water injection system at all transfer points and sources of generation of Particulate matter in Mineral Handling Plants and regular water sprinkling is being done with 2 Nos. of 28 KL Pressurized Water Sprinklers on Haul roads. Ambient Air Quality parameter is within Norms. <b>(ANNEXAURE – 1A )</b>
viii.	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Ground water is not used in our industry. However, 5 Nos. of Rainwater Harvesting systems have been implemented to augment ground water resources within the lease area.
ix.	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhopal, 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.	Regular monitoring of ground water level and quality is being carried out at four locations in and around the lease hold area. <b>(ANNEXAURE –1B)</b>
x	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. Jharan nalla and Kusumnalla shall be left undisturbed and protected.	No natural watercourse and/or water resources have been obstructed due to any mining operations. Jharan nalla and Kusum nalla has been left undisturbed and are being protected. Regular monitoring of water quality is also being done.
xi.	The project proponent shall regularly monitor the flow rate of the Jharan nalla and Kusumnalla flowing through the mine lease and maintain the records.	Water current meter has been procured from M/s India Instruments. Regular monitoring of the flow rate of the Jharan nalla and Kusum nalla is being done and records is being maintained. <b>(ANNEXAURE –1C)</b>



Sl.No	Conditions	Compliance
xii	The reclaimed and rehabilitated area shall be afforested. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhopal on six monthly basis.	<p>The reclaimed and rehabilitated area is regularly afforested and till date 681081 saplings have been planted in 265.05 Ha and the report is regularly sent to State Pollution Control Board.</p> <p>Afforestation for 5Hect area at Dalli Mechanised Mine has been done in this monsoon by M/s CG Van Vikas Nigam alongwith IOC Mines of BSP for total 20.38 Hect area afforestation at Township.</p>
xiii	Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.	Two RCC Retaining Walls and one earthen Retaining Wall have been made at the toe of overburden dumps within the mine to check run-off. The dimensions of RCC Retaining Walls are 30mX3.6mX2m and of Earthen wall is 100mX1.5mX3.5m.
xiv.	Plantation shall be raised in an area of 33.00 Ha. including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of excavated void to be converted in to water body, 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 Ha.	<p>The reclaimed and rehabilitated area is regularly afforested and till date 659891 saplings have been planted in 253 Ha areas.</p> <p>Afforestation for 5Hect area at Dalli Mechanised Mine has been done in this monsoon by M/s CG Van Vikas Nigam alongwith IOC Mines of BSP for total 20.38 Hect area afforestation at Township.</p>
xv	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM 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.	In existing facilities regular water sprinkling is being carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul such as haul road, loading and unloading point and transfer points. The Ambient Air Quality monitoring reports are regularly sent to State Pollution Control Board.(ANNEXAURE – 1A )
xvi.	Process water discharge and/or any waste water shall be properly treated to meet the prescribed standards before reuse/discharge. The runoff from temporary OB dumps and other surface run off shall be analyzed for iron and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.	In existing facilities process water is being recycled and reused for washing of iron ore in beneficiation plant. 16 nos. of check dams have been made to arrest surface run off and regular monitoring of surface runoff water is done. There is no discharge of water in the outside surrounding area. This practice will be implemented in the expansion of project.

Sl.No	Conditions	Compliance
xvii.	The decanted water from the beneficiation plant and slime/tailing pond shall be re-circulated within the mine and there shall be zero discharge from the mine.	Already is in practice for existing units and the decanted water from Hitkasa Tailing dam is recycled to washing plant to maintain zero discharge from the mine.
xviii.	Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained	Is being monitored. <b>(ANNEXAURE –1C)</b>
xix.	Regular monitoring of water quality, upstream and downstream of Jharan nalla and Kusumnalla shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhopal, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Regular monitoring of water quality of Jharan nalla and Kusum nalla is being carried out and records of monitoring data is being maintained and sent to State Pollution Control Board. <b>(ANNEXAURE –1D)</b>
xx.	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water for the project. Ground water shall not be used for the mining operations	No ground water is being used for Processing/beneficiation activities. The total water requirement is being made available from BSP owned "Boirdih dam" and the same will also be used in the upcoming project.
xxi.	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board	Suitable rainwater harvesting measures on long term basis will be planned and implemented in consultation with Regional Director, Central Ground Water Board. 5 Nos. of Rainwater Harvesting systems have been implemented in the existing system to augment ground water resources within the lease area.
xxii.	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.	The Vehicular emissions for existing facilities is being maintained and regularly monitored and will be kept under control. Measures are being taken for maintenance of vehicles used in mining operations. The testing result is enclosed in <b>ANNEXAURE –1E</b> .
xxiii.	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.	Primary Sewerage Treatment (Oxidation pond) for the treatment of sewage water for the colony is in place. Effluent Treatment Plant (ETP) in addition to Oil Trap Chambers) has been provided in all the workshops.

Sl.No	Conditions	Compliance
xxiv.	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhopal.	DGPS Survey of Co-ordinates and boundary of Rajhara Hill lease area has been done by Geotrax International Services, Raipur.
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.	Pre-placement medical examination and periodical medical examination of the workers engaged in the mines are carried out and records are maintained. All newly appointed workers undergo a comprehensive medical examination (Pre-employment Medical Examination) and subsequently a periodical Medical Examination (PME) at regular interval. All workers undergo a PME every 5 years, however workers whose age is more than 45 years, the PME is done in every 3 years. All contractual workers also undergone medical examination. The Examination is conducted by occupational health specialist of hospital of Bhilai Steel Plant. The PME is affected due to Covid-19 pandemic in the year 2020-21.
xxvi.	Implementation of Action plan on issues raised during Public Hearing	Under implementation
xxvii.	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	The Final Mine Closure Plan along with details of Corpus Fund with the approval of IBM will be submitted to the Ministry of Environment & Forests 5 years in advance.

#### B. General Conditions

Sl.No	Conditions	Compliance
i.	No change in Iron Ore Processing/Beneficiation technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	No change in Iron Ore Processing / Beneficiation technology and scope of working will be made without prior approval of the Ministry of Environment & Forests.
ii.	No change in the calendar plan including Processing/Beneficiation of mineral iron ore and waste should be made.	There is no change in the calendar plan including Processing/Beneficiation of mineral iron ore and waste& also it will be continued in future.
iii.	At least 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 10 micron i.e., PM10) and NOX monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally	For existing facilities, four ambient air quality-monitoring stations have been established in the core zone as well as in the buffer zone for RSPM, PM10, PM 2.5, SOx and NOx monitoring. The data so recorded is regularly sent to State Pollution Control Boards. (ANNEXAURE – 1A )

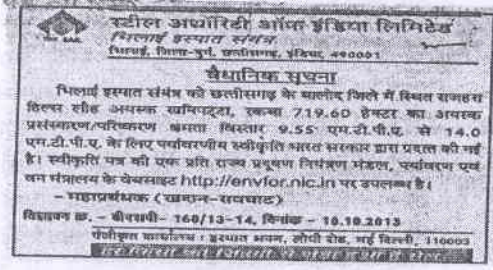
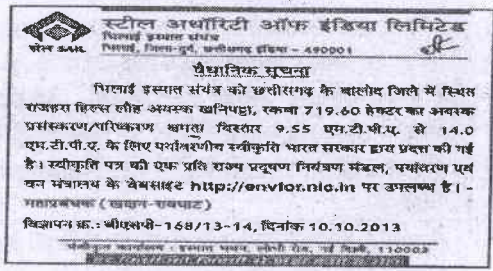


	and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. The data so recorded should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	
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Sl.No	Conditions	Compliance
iv.	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.	For existing facilities, measures are being taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. already provided with ear plugs / muffs. (ANNEXAURE – 1F )
v.	There will be zero waste water discharge from the plant.	For existing facilities zero water discharge is being maintained.
vi.	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.	Personnel working in dusty areas wear protective respiratory devices and are also provided with adequate training and information on safety and health aspects.
vii.	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.	Occupational health surveillance program of the workers is undertaken periodically by in-house NOHS department, Bhilai Steel Plant.
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	Structured Environment cell has been established and is functioning. Two Senior Executive with sufficient number of trained staff have been posted in environmental management cell. It is well equipped with required environmental parameters, monitoring and testing facilities.
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 Bhopal.	The funds earmarked for environmental protection measures will be kept in separate account and Year wise expenditure would be reported to the Ministry and its Regional Office located at Bhopal.
x.	The project authorities should inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	It will be implemented.
xi.	The Regional Office of this Ministry located at Bhopal 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.	Full cooperation will be provided.

Sl.No	Conditions	Compliance
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 Bhopal, 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, Bhopal, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.	Six monthly Report is being submitted regularly.
xiii.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZilaParisad/ 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.	Already sent and clearance letter put in the company website
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.	Not Applicable
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, Bhopal by e-mail.	The environmental statement for each financial year ending 31st March in Form-V is being submitted regularly for the existing project. For year ending 31 <sup>st</sup> March'2020, it has been submitted vide No. Mines/IOC/ DMM/ STE/ 2021/ 277 Dated: 05/08/2021.



Sl.No	Conditions	Compliance
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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhopal.	<p>Already advertised in two local newspapers of the District.</p> <p>11/10/13 दैनिक भास्कर, रायपुर</p>  <p>हरिभूषि</p> 

*Ship*

(P.M. Shirpurkar)

General Manager Incharge cum Agent  
Dalli Mechanised Mine

**AMBIENT AIR QUALITY (8 HRS. SAMPLING)**  
**DALLI MECHANISED AND JHARANDALLI MECHANISED MINE**  
**PERIOD : APRIL TO SEPTEMBER'2021**

(Unit :  $\mu\text{g}/\text{M}^3$ )

S.No.	Date	MVT Centre				Administrative Building				Hitkasa Pump House				Time Office-Jharandalli			
		PM-10	PM-2.5	NOx	SO <sub>2</sub>	PM-10	PM-2.5	NOx	SO <sub>2</sub>	PM-10	PM-2.5	NOx	SO <sub>2</sub>	PM-10	PM-2.5	NOx	SO <sub>2</sub>
	Norms	100	60	80	80	100	60	80	80	100	60	80	80	100	60	80	80
1	2 अप्रैल 21	56.43	22.56	10.97	10.98	61.41	22.82	13.39	13.44	28.83	15.35	9.33	5.32	61.46	25.62	10.95	11.81
2	20 अप्रैल 21	37.10	19.68	11.91	11.82	66.66	20.61	12.53	11.98	43.18	15.70	9.58	8.65	66.87	22.35	10.69	9.76
3	27 अप्रैल 21	54.35	20.20	11.06	9.48	62.25	21.52	12.06	11.10	36.89	13.35	8.46	6.26	62.69	20.07	10.75	9.20
4	14 मई 21	38.62	21.34	11.71	7.62												
5	20 मई 21	72.15	23.18	12.01	10.98	71.84	24.64	12.75	11.60	53.07	18.66	11.41	9.93	67.54	22.89	11.35	11.11
6	26 मई 21	63.80	20.71	12.39	11.98	69.48	22.81	13.07	12.74	47.66	16.73	10.67	8.85	66.00	20.84	11.05	10.24
7	11 जून 21	36.25	20.52	11.93	9.85												
8	16 जून 21	39.98	18.29	12.93	10.25	48.70	29.26	13.44	9.80	33.16	13.29	7.55	5.81	46.20	22.83	11.62	8.31
9	23 जून 21	31.69	18.60	12.45	9.11												
10	9 जुलाई 21	46.21	22.18	12.95	10.15	52.38	26.50	12.32	8.94	29.68	13.99	8.22	7.99	52.48	25.03	11.01	9.01
11	21 जुलाई 21	34.47	26.78	11.93	9.48	39.23	28.44	12.30	8.29	29.23	17.36	8.95	6.88	33.93	21.99	11.71	9.88
12	27 जुलाई 21	44.12	20.46	11.53	7.99	49.27	24.23	11.24	8.56	28.23	12.70	7.48	7.12	50.51	24.19	10.46	7.81
13	18 अगस्त 21	48.67	21.20	12.20	9.32	52.16	23.10	11.56	9.70	30.31	13.19	7.48	6.69	50.05	24.44	10.33	7.48
14	24 अगस्त 21	53.76	20.95	11.25	9.15	52.00	21.87	11.80	9.38	37.27	13.16	8.17	7.53	52.97	23.10	10.89	10.76
15	7 सितम्बर 21	46.59	19.94	10.49	8.65	51.81	19.79	11.04	8.35	35.37	11.59	7.39	6.62	50.19	21.95	11.40	9.41
16	22 सितम्बर 21	44.84	17.76	11.06	9.32	54.81	21.48	11.29	9.35	28.25	10.25	8.44	4.88	49.84	17.73	10.23	6.46

*Asstt. Manager*  
 27/12/2021  
 Asstt. Manager (Env.)  
 IOC-Rajhara

# ANNEXURE-1B

## PRE-MONSOON (SUMMER) SEASON GROUND WATER QUALITY AND GROUND WATER LEVEL IN IRON ORE COMPLEX

Date of Sampling :- 13 May, 2021

S.No.	Parameters	pH	Turbidity	Free Chlorine	Total Chlorine	Total Iron	Mn	Silica	Sulfide	Sulfate	Copper	Nitrate	Nitrite	Fluoride	Chloride	Alkalinity	Total Hardness	Dissolved Solids	Remarks
	Norms	6.5-8.5	5	0.20	-	0.30	0.1	-	-	200	0.05	45	-	1	250	200	300	500	
	Unit	-	NTU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	PPM	
1	Saptagiri Park (Borewell)	7.39	4.01	0.03	0.03	0.19	0.14	BDL	BDL	4.7	BDL	BDL	0.22	BDL	BDL	77.0	80.0	81.0	
2	Rajhara Baba area (Hand Pump)	7.95	3.33	0.03	0.03	0.15	0.23	BDL	BDL	3.1	BDL	BDL	0.38	BDL	1.10	46.0	51.0	75.0	
3	256 Unit Quarters (Hand Pump)	7.33	5.19	0.03	0.03	0.27	0.28	BDL	BDL	11.0	BDL	BDL	0.10	BDL	0.60	72.0	76.0	211.0	
4	Chikhilakasa Govt. School (Hand Pump)	7.07	1.66	0.03	0.04	0.28	0.19	BDL	BDL	6.4	BDL	1.80	1.00	BDL	1.20	62.0	69.0	130.0	
5	Gotulmunda Village (Hand Pump)	7.07	4.70	0.03	0.03	0.15	0.22	BDL	BDL	9.7	BDL	BDL	1.10	BDL	1.10	61.0	81.0	158.0	
6	Oriya Basti (Hand Pump)	7.19	6.14	0.03	0.03	0.25	0.18	BDL	BDL	10.4	BDL	1.70	1.00	BDL	0.80	75.0	85.0	207.0	
7	Chikhli Village near Govt. Middle School (Hand Pump)	6.96	3.90	0.03	0.02	0.21	0.25	BDL	BDL	7.6	BDL	BDL	0.60	BDL	1.20	67.0	81.0	154.0	
8	Jamarua Village (Hand Pump)	6.86	3.44	0.02	0.02	0.18	0.29	BDL	BDL	8.1	BDL	0.70	1.20	BDL	0.70	52.0	67.0	117.0	
9	Salhe Village (Hand Pump)	7.12	2.26	0.03	0.03	0.14	0.21	BDL	BDL	6.6	BDL	1.00	1.50	BDL	1.10	74.0	89.0	243.0	
10	Barsatola Village (Hand Pump) near school	6.94	2.76	0.03	0.02	0.13	0.19	BDL	BDL	7.9	BDL	BDL	0.90	BDL	1.40	60.0	74.0	159.0	
11	Nirmala Sector, near block No. 41 (Hand Pump)	7.51	4.44	0.02	0.02	0.16	0.11	BDL	BDL	4.8	BDL	0.90	2.20	BDL	1.60	70.0	75.0	168.0	
12	Karutola Village (Hand Pump)	7.05	5.26	0.03	0.03	0.24	0.22	BDL	BDL	8.7	BDL	0.64	0.62	BDL	BDL	125.0	119.0	302.0	
13	Bital Village (Hand Pump)	7.19	2.59	0.02	0.03	0.15	0.29	BDL	BDL	6.2	BDL	1.10	1.10	BDL	0.70	157.0	172.0	169.0	
14	Dhobedand (Hand pump)	7.14	3.12	0.03	0.03	0.19	0.15	BDL	BDL	11.5	BDL	1.30	1.00	BDL	1.10	121.0	131.0	174.0	
15	Kokan Village, near Bandh Para (Hand Pump)	6.88	2.66	0.03	0.03	0.15	0.19	BDL	BDL	5.8	BDL	1.00	1.60	BDL	BDL	82.0	90.0	121.0	

Note : Read Copper in micro gram/litre in actual, BDL = Below detectable limit.

### Ground Water Level (in Meters)

S.No.	Location	Ground Water Level
1	Panderdali, Quarry Road (Well)	5.80 Meter
2	Chikhli Village (Well)	3.65 Meter
3	Barsatola Village (Well)	4.70 Meter
4	Gotulmunda Village (Well)	4.90 Meter


S.No.	Location	Ground Water Level
5	Karutola Village (Well)	4.00 Meter
6	Salhe Village (Well)	6.10 Meter
7	Jheenkatoia Village (Well)	8.80 Meter

Asstt. Manager (Env)  
IOC-Rajhara



**WATER FLOW RECORDS OF JHARAN NALLA AND KUSUM NALLA**  
**PERIOD : APRIL TO SEPTEMBER'2021**

S.No.	Date	LOCATION						Remarks
		Jharan Nalla			Kusum Nalla			
		Time In Seconds	Revolution	Velocity (M/Sec.)	Time in Seconds	Revolution	Velocity (M/Sec.)	
1	14 अप्रैल 21	60	45	0.505	60	56	0.619	
2	25 सितम्बर 21	60	65	0.733	60	70	0.789	

  
 28/12/2021  
 Asstt. Manager (Env.)  
 IOC-Rajhara

**MONSOON SEASON GROUND WATER QUALITY AND GROUND WATER LEVEL IN IRON ORE COMPLEX**

Date of Sampling :- 20 September, 2021

S.No.	Parameters	pH	Turbidity	Free Chlorine	Total Chlorine	Total Iron	Mn	Silica	Sulfide	Sulfate	Copper	Nitrate	Nitrite	Fluoride	Chloride	Alkalinity	Total Hardness	Dissolved Solids	Remarks
	Norms	6.5-8.5	5	0.20	-	0.30	0.1	-	-	200	0.05	45	-	1	250	200	300	500	
	Unit	-	NTU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	PPM	
1	Saptagiri Park (Borewell)	7.42	3.88	0.03	0.03	0.17	0.10	BDL	BDL	5.2	BDL	BDL	0.19	BDL	BDL	72.0	79.0	82.0	
2	Rajhara Baba area (Hand Pump)	7.39	2.94	0.02	0.02	0.18	0.17	BDL	BDL	4.7	BDL	BDL	0.22	BDL	1.20	52.0	55.0	79.0	
3	256 Unit Quarters (Hand Pump)	7.41	6.69	0.03	0.03	0.28	0.89	BDL	BDL	9.6	BDL	BDL	0.90	BDL	0.70	50.0	88.0	301.0	
4	Chikhilakasa Govt. School (Hand Pump)	7.12	1.50	0.02	0.03	0.16	0.10	BDL	BDL	5.7	BDL	1.60	1.00	BDL	1.10	59.0	65.0	126.0	
5	Gotulmunda Village (Hand Pump)	7.34	3.81	0.02	0.03	0.19	0.19	BDL	BDL	8.1	BDL	BDL	1.00	BDL	1.00	61.0	77.0	166.0	
6	Oriya Basti (Hand Pump)	7.83	5.56	0.03	0.03	0.23	0.18	BDL	BDL	9.6	BDL	1.10	1.10	BDL	0.70	66.0	80.0	199.0	
7	Chikhli Village near Govt. Middle School (Hand Pump)	7.18	4.21	0.03	0.03	0.18	0.20	BDL	BDL	7.8	BDL	BDL	0.42	BDL	1.30	61.0	78.0	160.0	
8	Jamarua Village (Hand Pump)	7.21	3.72	0.03	0.03	0.13	0.19	BDL	BDL	6.2	BDL	0.90	1.10	BDL	0.80	62.0	69.0	111.0	
9	Salhe Village (Hand Pump)	7.42	3.11	0.02	0.02	0.14	0.21	BDL	BDL	6.5	BDL	1.10	1.50	BDL	1.00	69.0	78.0	254.0	
10	Barsatola Village (Hand Pump) near school	7.41	2.26	0.02	0.02	0.21	0.16	BDL	BDL	5.9	BDL	BDL	0.70	BDL	1.60	72.0	85.0	169.0	
11	Nirmala Sector, near block No. 41 (Hand Pump)	7.56	3.93	0.02	0.03	0.14	0.10	BDL	BDL	4.4	BDL	0.70	1.30	BDL	1.30	78.0	82.0	129.0	
12	Karutola Village (Hand Pump)	7.11	6.02	0.03	0.03	0.22	0.21	BDL	BDL	7.9	BDL	0.60	0.65	BDL	BDL	119.0	123.0	289.0	
13	Bitat Village (Hand Pump)	7.26	2.41	0.02	0.03	0.17	0.14	BDL	BDL	5.8	BDL	0.90	1.00	BDL	0.80	162.0	173.0	152.0	
14	Dhobedand (Hand pump)	7.21	2.88	0.03	0.03	0.17	0.11	BDL	BDL	7.4	BDL	1.20	1.00	BDL	1.20	119.0	129.0	171.0	
15	Kokan Village, near Bandh Para (Hand Pump)	7.38	2.75	0.03	0.03	0.21	0.12	BDL	BDL	7.6	BDL	0.80	0.89	BDL	1.10	80.0	86.0	119.0	

Note : Read Copper in micro gram/litre in actual, BDL = Below detectable limit.

**Ground Water Level (In Meters)**

S.No.	Location	Ground Water Level
1	Panderdelli, Quarry Road (Well)	2.73 Meter
2	Chikhli Village (Well)	0.49 Meter
3	Barsatola Village (Well)	0.00 Meter
4	Gotulmunda Village (Well)	0.46 Meter

S.No.	Location	Ground Water Level
5	Karutola Village (Well)	0.30 Meter
6	Salhe Village (Well)	1.74 Meter
7	Jheenkatala Village (Well)	0.00 Meter

  
 28/12/2021  
 Asstt. Manager (Env)  
 IOC-Rajhara

**WATER QUALITY OF KUSUM NALLA AND JHARAN NALLA**  
**DALLI MECH. AND JHARANDALLI MECH. MINES**  
**PERIOD : APRIL TO SEPTEMBER 2021**

Sl.No.	Parameter	Acceptable Limits	21-अप्रैल-21		29-मई-21		29-जून-21		28-जुलाई-21		27-अगस्त-21		25-सितम्बर-21	
			Kusum Nalla	Jharan Nalla	Kusum Nalla	Jharan Nalla	Kusum Nalla	Jharan Nalla	Kusum Nalla	Jharan Nalla	Kusum Nalla	Jharan Nalla	Kusum Nalla	Jharan Nalla
1	pH	5.5 - 9.0	7.37	7.41	7.39	7.41	7.37	7.41	7.42	7.51	7.73	7.65	7.60	7.59
2	TSS	100.0 mg/l	28.0	30.0	22.0	26.0	24.0	22.0	26.0	29.0	32.0	41.0	45.0	48.0
3	Fe	3.0 mg/l	0.21	0.19	0.17	0.22	0.2	0.2	0.18	0.17	0.22	0.29	0.19	0.26
4	COD	250.0 mg/l	2.0	2.0	2.0	3.0	3.00	4.00	4.0	4.0	7.0	9.0	6.0	6.0
5	BOD	30.0 mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6	Temp	40.0 °C	30.0	30.0	29.0	29.0	27.5	27.5	26.0	26.0	26.0	26.0	26.0	26.0
7	O&G	10.0 mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	Sulfide	2.0 mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

*Asstt. Manager*  
 28/12/2021  
 Asstt. Manager (Env.)  
 IOC-Rajhara



**AMBIENT NOISE**  
**DALLI AND JHARANDALLI MECHANISED MINES**  
**PERIOD : APRIL TO SEPTEMBER'2021**

S.No.	Location→	MVT Centre		Administrative Building		Hitkasa Pump House		Time Office-Jharandalli	
	Parameter→	Leq.		Leq.		Leq.		Leq.	
	Norms →	Day	Night	Day	Night	Day	Night	Day	Night
		75 dB (A)	70 dB (A)	75 dB (A)	70 dB (A)	75 dB (A)	70 dB (A)	75 dB (A)	70 dB (A)
1	16 अप्रैल 21	51.5	-	51.8	-	46.0	-	51.6	-
2	26 मई 21	52.2	-	52.4	-	46.7	-	52.1	-
3	16 जून 21	51.0	-	52.1	-	45.9	-	51.5	-
4	16 जुलाई 21	52.1	-	51.4	-	46.2	-	52.3	-
5	5 अगस्त 21	51.6	-	51.9	-	46.5	-	52.0	-
6	1 सितम्बर 21	52.0	-	51.6	-	45.8	-	52.1	-

  
 27/12/2021  
 Asstt. Manager (Env.)  
 IOC-Rajhara

पर्यावरण प्रबोधन प्रयोगशाला, भिलाई इस्पात संयंत्र  
लौह अयस्क समूह, राजहरा

WORK-ZONE NOISE (DALLI MECH. MINE) [ Norms as per C.T.O. issued by Chhattisgarh Environment Conservation Board ]

APRIL - 2021

S.No.	Date	Location	Parameter	Norm	Actual	Remark
1	16 अप्रैल 21	QUARRY AREA				
		1. IDM-30, Drill Master, No. 10				
		a. Operator level	Leq.	85 db (A)	84.0	
		b. Ground level	Leq.	85 db (A)	86.2	
		2. IDM-30, Drill Master, No. 9				
		a. Operator level	Leq.	85 db (A)	87.8	
		b. Ground level	Leq.	85 db (A)	89.5	
		3. IDM-30, Drill Master, No. 11				
		a. Operator level	Leq.	85 db (A)	84.7	
		b. Ground level	Leq.	85 db (A)	86.2	
		4. Hy.Shovel, Tata Hitachi				
		a. Operator level	Leq.	85 db (A)	82.1	
		b. Ground level	Leq.	85 db (A)	84.0	
		5. Hy.Shovel, BEML BE-1000, No. 19				
		a. Operator level	Leq.	85 db (A)	79.0	
		b. Ground level	Leq.	85 db (A)	81.2	
		6. Dumper No. 121, Operator Level	Leq.	85 db (A)	84.0	
		7. Dumper No. 128, Operator Level	Leq.	85 db (A)	82.0	
		8. Dumper No. 133, Operator Level	Leq.	85 db (A)	82.3	
		9. Dumper No. 134, Operator Level	Leq.	85 db (A)	83.0	
2	16 अप्रैल 21	PLANT AREA				
		1. Classifire- No. 2, Operator level	Leq.	85 db (A)	84.0	
		2. Jaw Crusher, Operator level	Leq.	85 db (A)	82.0	
		3. Washing building (Inside)	Leq.	85 db (A)	80.1	
		4. Washing building (Outside)	Leq.	85 db (A)	73.8	
3	16 अप्रैल 21	EMM Garage				
		1. EMM Garage (Inside Shed)	Leq.	85 db (A)	68.1	
		2. EMM Garage (Outside Shed)	Leq.	85 db (A)	63.4	
4	16 अप्रैल 21	PCCF Bunker				
		1. Dumper Control cabin	Leq.	85 db (A)	63.0	
		2. Plant Control room	Leq.	85 db (A)	68.2	

## JUNE - 2021

S.No.	Date	Location	Parameter	Norm	Actual	Remark
1	19 जून 21	<b>PLANT AREA</b>				
		1. Washing building (Inside)	Leq.	85 db (A)	83.2	
		2. Washing building (Incharge cabin)	Leq.	85 db (A)	71.1	
		3. Classifire- No. 1a, Operator level	Leq.	85 db (A)	85.6	
		4. Classifire- No. 1b, Operator level	Leq.	85 db (A)	85.2	
		5. Classifire- No. 2a, Operator level	Leq.	85 db (A)	87.4	
		6. Classifire- No. 2b, Operator level	Leq.	85 db (A)	86.5	
		7. Classifire- No. A, Operator level	Leq.	85 db (A)	85.3	
		8. Classifire- No. B, Operator level	Leq.	85 db (A)	88.3	
		9. Screen-A (double decker)	Leq.	85 db (A)	87.9	
		10. Screen-B (double decker)	Leq.	85 db (A)	88.2	
		11. Screen-3 (double decker)	Leq.	85 db (A)	84.4	
		12. Screen-4 (double decker)	Leq.	85 db (A)	89.3	
		13. Jaw Crusher, from 5 meter	Leq.	85 db (A)	87.2	
		14. Crushing Building (Inside)	Leq.	85 db (A)	81.3	
		15. Crushing Building (Rest room)	Leq.	85 db (A)	74.6	

## JULY - 2021

S.No.	Date	Location	Parameter	Norm	Actual	Remark
1	16 जुलाई 21	<b>PLANT AREA</b>				
		1. Washing building (Out-side)	Leq.	85 db (A)	76.4	
		2. Washing building (In-side)	Leq.	85 db (A)	82.0	
		3. Classifire- No. 1, Operator level	Leq.	85 db (A)	84.5	
		4. Double deck screen, Operator level	Leq.	85 db (A)	82.8	
		5. Channel, Operator level	Leq.	85 db (A)	83.1	
		6. Conveyor No 3 - 3A, Operator level	Leq.	85 db (A)	86.8	
		7. P.L.C. Operator cabin	Leq.	85 db (A)	76.7	
		8. Jaw Crusher, Operator level	Leq.	85 db (A)	87.6	
2	16 जुलाई 21	<b>QUARRY AREA</b>				
		1. Water Tanker, BEML, No. 8	Leq.	85 db (A)	82.6	
		2. Dumper, BEML, No. 134, Operator Level	Leq.	85 db (A)	83.0	
		3. Dumper, BEML, No. 131, Operator Level	Leq.	85 db (A)	83.4	
		4. Drill, IDM, No. 16				
		a. Operator level	Leq.	85 db (A)	81.6	
		b. Ground level	Leq.	85 db (A)	77.6	
		5. Hy.Shovel, BEML, No. 20				
		a. Operator level	Leq.	85 db (A)	80.2	
		b. Ground level	Leq.	85 db (A)	74.5	
3	16 जुलाई 21	<b>PCCF Bunker</b>				
		1. Dumper Control cabin	Leq.	85 db (A)	63.8	
		2. Plant Control	Leq.	85 db (A)	66.4	

  
 28/12/2021  
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