

**REPORT OF THE COMMITTEE TO NGT (WESTERN ZONE)**

**IN THE MATTER OF**

**Original Application no 17/2020 (WZ)**

Hon'ble Nation Green Tribunal, Principal Bench, New Delhi has passed an order dated 10.07.2020 in the matter of Original Application no. 15/2020 (WZ) with Original Application no. 17/2020 (WZ) Krishna Marathe & Ors V/s Union of India & ors. Applications pertaining to alleged environmental violations by M/s Gogte Minerals and M/s New India Mining Corporations at village Redi, Tal: Vengurla, Dist: Sindhudurg.

As per the above-said order dated 10.07.2020 of Hon'ble NGT, New Delhi a Committee to be constituted consisting of (i) Representative of MoEF&CC, New Delhi, (ii) Representative of Central Pollution Control Board, (iii) Maharashtra Coastal Zone Management Authority and (iv) Maharashtra Pollution Control Board and submit a joint report to Hon'ble NGT, New Delhi. The MPCB will be the nodal agency for the compliance.

Accordingly, a committee was constituted vide order dated 27.08.2020 in the matter. Copy of the said order is attached as **Annexure-1**

Committee earlier decided to cause a joint site inspection on 07.09.2020, however, it was postponed due to the non-operation of mines due to the rainy season. Hence, it was decided to make a joint visit when mining is in operation in the first week of October 2020. In the meantime, it was decided that the Sub-Regional officer, MPCB Ratnagiri should collect water samples fortnightly of the wells, of adjacent villages of the mine for analysis purposes to produce water quality data of wells for report preparation. This was submitted before the Hon'ble NGT. Accordingly, the committee visited the site of M/s Gogte Minerals at village Redi, Tal: Vengurla, Dist: Sindhudurg on 20<sup>th</sup> and 21<sup>st</sup> October 2020.

Following members of the committee were present for joint inspection:

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|-----------------------------|----------------------------|
| 1) Shri. Suresh Kumar Adapa | Representative MoEFCC, GoI |
| 2) Shri Shashikant Lokhande | Representative CPCB, GoI   |
| 3) Shri Rupesh Mahale       | Representative MCZMA, GoM  |
| 4) Shri Ravindra Andhale    | Representative MPCB        |

On the day of the site visit, there were rains in the afternoon and mining operations were observed temporarily stopped due to the extended rainy season. The issues raised by the applicants were discussed with the representatives of M/S Gogte Minerals and all the issues raised by the applicants were inspected on-field by the Committee.

Committee noted that issues raised by the applicant broadly pertain to violations of certain conditions of the Environment Clearance dated 22.04.2010 granted to M/s

Gogte Minerals, contamination of Groundwater and potable water, and dumping of the mine waste in the Arabian Sea in violation of CRZ norms.

In Para No. 6 & subsequent paras of the Petition, the Applicant has alleged the violation of the certain general and specific conditions of the Environment clearance dated 22.4.2010 granted to M/s Gogte Minerals for iron ore mining over 94.706 Ha.

The allegations of the Applicant mentioned in Application pertaining to violations of EC conditions, CRZ issues, and Observations of the Committee is tabulated as follows:

| Sr | Condition of the EC                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| 1  | <b>Specific condition no. (i) of the EC,</b><br><i>“Topsoil shall be stacked properly with adequate protection measures at earmarked sites and used for reclamation and rehabilitation of the mined-out areas”.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|    | <b>Allegation of the Applicant</b>                                                                                                                                                                                  | <b>Committee Observations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| a  | Topsoil has not been stacked properly within the mining lease area and has not been used for reclamation and rehabilitation of the mined-out areas, but has been dumped illegally into the Arabian Sea.             | <p>The committee noted that the Indian Bureau of Mines (IBM) approved the mining plan vide letter dated 27.07.2007, wherein it is mentioned that there won't be any generation of Topsoil during the Mining Activities. Copy of the relevant pages of approved mining plan attached as <b>Annexure-2</b></p> <p>Further, the EIA-EMP report submitted by the Respondent no.6 company for grant of EC also clearly mentioned that there is no topsoil generation/stacking during the Mining Activities. Environmental clearance for the project has been granted in 2010. During the site inspection, it was observed that the lease area was found rich in hard laterite cover and hence no occurrence of Top Soil. And therefore, there are no topsoil stacks observed.</p> |
| b  | Mining waste material has been dumped outside the mining lease area and it is evident from the letter dated 15.1.2019 of Dy. Controller of Mines                                                                    | Committee noted the letter dated 15.1.2019 of the Dy. Controller of Mines addressed to M/s Gogte Minerals. Committee noted that the said letter mentions a change in dumping location and does not mention the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | dumping outside the lease area. Committee during the site inspection observed that dumping of the mine waste is within the permissible mining lease area of 94.706 Ha. The mining lease area is demarcated with boundary pillars (with latitude and longitude).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| C  | The dumping is still being done by the company outside the permissible area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | During the site inspection, the committee did not find fresh dumping of mine waste outside the Mining Lease area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| d  | The new land has been formed by the dumping of the mining waste. The new land has been allotted survey nos by the District Collector, Sindhudurg. A letter dated 18.12.1992 of District Inspector, Land survey reported to District Collector mentions the creation of the new land.                                                                                                                                                                                                                                                                                               | The committee visited the said old dump sites formed along the coast. It is noted that dumping was done at the site from the year 1974. During the site inspection, local villagers informed that dumping of mine waste on the said old dump sites were stopped prior to the year 1990. Letter from Sarpanch of village Redi attached as <b>Annexure-3</b> . At present, the said dump sites bear survey no. 15 & 58. These sites are stabilized with plantation. Presently, old dump sites land belongs to the Forest Department of Government of Maharashtra. Committee during the site inspection observed the Board of the Forest Department mentioning that survey no. 15 (village Redi) and survey no. 58 (village Kanyal) belong to Forest Department, GoM. There was no ongoing dumping observed on the said old dump sites. Copy of photographs of the display board attached as <b>Annexure-4</b> |
| 2. | <p><b>Specific condition no. vi) of the EC:</b></p> <p><i>“No two pits shall be simultaneously worked. After exhausting the first mine pit and before starting mining operations in the next pit, reclamation and plantation work in the exhausted pit shall be completed so as to ensure that reclamation, forest cover, and vegetation are visible during the first year of mining operations in the next pit. This process shall be followed till the last pit is exhausted. Adequate rehabilitation of mined pit shall be completed before any new ore body is worked”</i></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

|   | <b>Allegation of the Applicant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Committee Observations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| a | The applicant has alleged the violation of the above said EC condition and it is evidenced from the compliance report dated 26.5.2018 submitted by Respondent No. 6 (Company). The Compliance Report of 2018 notes that 'out of the four pits within the mining lease, one is waterlogged, two are temporary backfilled, and only one mine is in operation.                                                                                                                                                                                                                                                                                                    | <p>Mining activities are carried out in One pit only, namely pit no.203.</p> <p>The second pit (Mauli Pit over 3.5 ha.) falls in the CRZ area and is located at around 1 km from the ongoing mining operation. The said Mauli pit was closed in 1990 and currently it is a water reservoir and water from this reservoir is used for irrigation by the villagers. The pit was stabilized with dense plantation in and around the periphery of the pit.</p> <p>These pits are mentioned in the Approved Mining Plan. Copy of the relevant page from the Approved Mining Plan is attached as <b>Annexure-5</b></p> |
| 3 | <p><b>Specific condition no. (vii) of the EC:</b></p> <p><i>“The ground water quality shall be monitored regularly to check the ingress of sea water by having observation wells around the Mining lease area along the sea coast”</i></p> <p><b>Specific condition no. viii) of the EC:</b></p> <p><i>“Monitoring of surface and ground water quality within 5.0 km of the lease shall be regularly conducted and records maintained, and data submitted to the regional office of the Ministry regularly. Further monitoring points shall be located between the mine and, drainage in the direction of flow of ground water and records maintained”</i></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|   | <b>Allegation of the Applicant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Committee Observations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| a | The applicant has alleged that there is ground water contamination due to mining operations as evident from scientific analysis done BY THE Applicant through Directorate of Health Services, Environmental and Pollution Wing Goa dated 3.06.2019, from well situated in property bearing survey no. 47 at village Kanyal (Redi). As per the said analysis, the water sample does not conform to the standards prescribed for drinking water                                                                                                                                                                                                                  | <p>Committee noted that there is a report Regional Centre of National Institute of Hydrology (NIH) (Ministry of Jal Shakti, RD &amp; GR, Govt. of India) about the hydrogeological studies (for 4 seasons starting from monsoon 2019) in and around the Redi Iron Ore Mine.</p> <p>The NIH institute submitted the interim report of the above studies. The level and quality of ground water at 26 locations had been studied during monsoon and post-monsoon of 2019. As per the interim report dated 7.2.2020 of NIH:</p>                                                                                     |



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|  | <ul style="list-style-type: none"><li>• The present observation took during the Season Monsoon and Post monsoon 2019 did not show any significant change in water levels.</li><li>• The study indicated that there is no sea water intrusion as observed through water quality parameters.</li><li>• From the preliminary investigation, it is found that there is no direct impact on water levels and groundwater quality due to mining.</li><li>• The estimation of seawater intrusion using the Ghyben Herzberg formula indicated that there is no intrusion of seawater in the study area up to 400m to 500m.</li><li>• From conceptual modelling, it is understood that there is no threat of contamination under defined hydrological conditions.</li><li>• Copy of the conclusion of the said interim report dated 7.2.2020 of the NIH of Ministry of Jal Shakti, RD &amp; GR, Govt. of India is enclosed as <b>Annexure-6</b></li></ul> <p>Committee also noted that ground water and surface water are being monitored at 6 and 4 locations respectively through MoEF&amp;CC recognized laboratory by the Respondent No. 6 company. Copy of the latest report is attached as <b>Annexure-7</b></p> <p>MPCB also monitors pit water discharge and water samples of adjacent wells. Copy of the tabulated analysis results is attached as <b>Annexure-8</b></p> <p>It was noted that the pH of the well water is low. Mining representative informed that study is being carried out by the National Institute of Hydrology, (NIH). Letter justifying the reduction of pH given by NIH is attached as <b>Annexure-9.</b></p> |
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| <p>The applicant further alleged that drinking water is not potable, as evidenced from report dated 18.7.2018 of District public Health Laboratory and letter dated 10.6.2019 by the village panchayat, Redi.</p> | <p>Committee during the site inspection observed that there is a Water Treatment plant near to old Mine Pit (Block II). It is informed that accumulated water from the mining pits is treated in the WTP and after treatment, it is supplied to villagers for drinking purposes.</p> <p>After the treatment, the treated water is pumped to the overhead tank belongs to Gram Panchayat. Gram Panchayat supplies the water to the village for drinking. During the inspection, it was observed that the treated water is being analyzed on daily basis by the WTP, and records are maintained.</p> <p>In addition to this water treatment plant also get analyze the treated water sample once in a month through Public Health Laboratory, Oras, Sindhurg, Govt. of Maharashtra. The reports mention that the water is POTABLE (Biological and Chemical parameters). A sample copy of the latest report is attached as <b>Annexure-10.</b></p> <p>Committee noted that the MPCB has collected the sample on 15.9.2020 from the Water Treatment Plant (WTP) of M/s Gogte Minerals at Village Redi. Report of the MPCB dated 17.9.2020 is attached as <b>Annexure-11.</b></p> <p>Committee during the site inspection collected three water samples for portability test. 1. Shri Devi Mauli Water Treatment Plant (WTP) installed by M/s Gogte Minerals at village Redi for supply of drinking water to the villagers. 2. Tap water at a house of Redi village supplied by Water treatment plant. 3. Open well water of Shri. Mangesh Kamat, Village</p> |
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|    |                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Kanyal, Redi situated in Survey No.33. The said samples submitted to the Public Health Laboratory, Oras, Sindhurg, Govt. of Maharashtra on 22/10/2020 for portability test. The result of these samples are received on 18/11/2020 and the same states that all the three samples of water are potable. Copy of the report obtained from the Public Health Laboratory is attached as <b>Annexure-12</b>.</p>                                                                                                                                                                                                                             |
|    | <p>The applicant has alleged that MoEF&amp;CC monitored the mines operated by the Respondent No. as on 24.9.2009 and the monitoring report of the MoEF stated that Ground water quality not submitted to Central Ground water Board,</p>                                                                                                                                                                                | <p>Committee noted that the present application is about the mining area of 94.706 Ha for which EC was granted in the year 2010 of the Ms Gogte Minerals. MoEF&amp;CC, New Delhi monitoring report of 24.9.2009 pertains to another mining block no. 2 located outside the above said mining lease area of 94.706 Ha. Final Mine Closure Plan for block 2 was approved by the Indian Bureau of Mines and has been implemented. This pit acts as a water reservoir as approved in the Final Mine Closure Plan. The water treatment plant is installed adjacent to this water reservoir. This Pit is rehabilitated with dense plantation.</p> |
| 4  | <p><b>Specific condition no .xii) of the EC:</b></p> <p><i>“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”</i></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|    | <b>Allegation of the Applicant</b>                                                                                                                                                                                                                                                                                                                                                                                      | <b>Committee Observations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| a. | <p>Applicant has alleged that, to check wash-off from dump at Pit No. 235, retention wall, garland drain, embankment etc. as approved along the periphery of</p>                                                                                                                                                                                                                                                        | <p>Committee during the site inspection observed that passive dumps over an area of 5.10 ha. has been stabilized with geotextile matting. Plantation of 84046 no. saplings have been carried over the passive</p>                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|    | the dump has not been constructed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>dumps. Retaining walls have been provided at the toe of the active dumps. Currently, mining operation at pit no. 203 is temporarily stopped due to rains for which garland drains have been provided.</p> <p>Respondent no.6 has informed that the retaining wall and garland drain was constructed and the same was reported to the Indian Bureau of Mines. The same has been verified by the committee. Copy of the reply sent to IBM dated 13-07-2018 is attached as <b>Annexure-13</b>.</p> |
| 5. | <p><b>Specific condition no. xiv) of the EC:</b></p> <p><i>“Land-use pattern of the nearby villages shall be studied, including identification of common property resources available for conversion into productive land. Action plan for abatement and compensation for damage to agricultural land/common property land (if any) in the nearby villages, due to mining activity shall be submitted to the Regional office of the Ministry <b>within six months before start of mining</b>. Annual status of implementation of the plan and expenditure” thereon shall be reported to the Regional Office of the Ministry.</i></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|    | <b>Allegation of the Applicant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Committee Observations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|    | The applicant has alleged violation of the above condition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Committee noted that the PP submitted the Action Plan for abatement and compensation for damage to agriculture land/common property land due to mining activity to the Ministry prepared vide letter dated 15.06.2011. A copy is attached as <b>Annexure-14</b> .                                                                                                                                                                                                                                  |
| 6  | <p><b>Specific condition no. x) of EC:</b></p> <p><i>“Trenches/garland drains shall be constructed at foot of dumps and coco filters installed at regular intervals to arrest silt from being carried to water bodies. Adequate number of Check Dams and Gully Plugs shall be constructed across seasonal/perennial nallahs (if any) flowing through the mining lease area and de-silting at regular intervals shall be carried out”</i></p>                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|    | <b>Allegation of the Applicant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Committee Observations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| a. | The applicant has alleged the violation of the above condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The committee observed that Garland drain has been provided at the toe of the dumps.</p> <p>During the visit, the representative informed that the garland drain of 2660 meters, 3</p>                                                                                                                                                                                                                                                                                                          |

|   |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|   |                                                                                                                     | numbers of check dams and coco filter have been provided and also informed that the desilting of garland drains is being carried out regularly. All the surface runoff from the dumps, catchment area within the mining lease area is diverted and collected at the pit under operation (Pit no, 203).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 7 | Other Allegations                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|   | The applicant has alleged dumping of the mine wastes in the Arabain Sea and degradation of the coastal environment. | <p>The committee was informed that dumping of the mine waste was started in the year 1974 along the coast and stopped before 1990. Local villagers during the site inspection also informed that dumping was stopped in the year 1990. There is a village sarpanch letter supporting the same.</p> <p>At present, the said dump sites bear survey no. 15 &amp; 58. These sites are stabilized with plantation. Presently, old dump sites land belongs to the Forest Department of Government of Maharashtra. Committee during the site inspection observed the Board of the Forest Department mentioning that survey no. 15 (village Redi) and survey no. 58 (village Kanyal) belong to Forest Department, GoM. There was no ongoing dumping observed on the said old dump sites, during the site visit.</p> <p>The committee observed that based on the coastal land use map, the MCZMA vide letter bearing no. CRZ 2009/ CR 73/ TC 3 dated 6.1.2010 allowed the Redi Iron Ore Mine lease (Block 1) for 94.706 Ha at village Redi, Taluka Vengurla, District Sindhudurg, under CRZ Notification, 1991 for carrying out iron ore mining activities subject to the condition that:</p> <p><i>“The mining activities should not be carried out on CRZ affected area i.e. survey no. 32 new ( 234 old)”</i></p> |

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|                                                                                                                                                                                                                                                         | <p>At present, the CZMP of Sindhudrug District under CRZ Notification, 2011 is approved in the year 2019 by the MoEF&amp;CC, New Delhi. Said Approved CZMP is superimposed on the google image, as per which, current mining activities (at present temporarily stopped due to rains) of M/s Gogte Minerals are situated outside the CRZ area.</p> <p>Part of Survey no. 32 and a small part of survey 28 falls under the CRZ area, as per above said the approved CZMP under CRZ Notification, 2011 finalized in the year 2019. The committee observed no mining activity being carried out in survey no. 32 and survey no. 28.</p>                                               |
| <p>The applicant claims that the death of several coconut trees which have died as a result of a severely depleted groundwater table, which found that several numbers of coconut trees have died because of severe depletion of groundwater levels</p> | <p>As per the Interim Report submitted by the National Institute of Hydrology, the institute found that there is no direct impact on water levels and groundwater quality due to mining. The conclusion of the report is attached.</p> <p>The report carried out by an Agriculture expert appointed by the Resporndent suggests that the death of coconut trees are affecting the productivity and life of coconuts. Shortage of water is not cause of death of the coconut palm. Their mortality is linked to the Rhinoceros Beetle, the Red Palm Weevil and fungal infections like bud rot and Ganoderma lucidum wilt. Copy of the report is attached as <b>Annexure-15</b>.</p> |

*A. Suresh Kumar*  
 Suresh Kumar Adapa  
 Scientist'D' IRO,  
 MoEF&CC, Nagpur, Gol

*Rupesh Mahale*  
 Rupesh Mahale  
 Coastal Officer, MCZMA,  
 Environment Dept., GoM

*Shashikant Lokhande*  
 Shashikant Lokhande  
 Scientist'E' Regional Directorate, Pune,  
 Central Pollution Control Board, Gol

*Ravindra Andhale*  
 Ravindra Andhale  
 Regional Officer,  
 Maharashtra Pollution Control Board



**MAHARASHTRA POLLUTION CONTROL BOARD**  
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No. MPCB/RO/KOP/ 420

Date: 27/08/2020

**Office Order**

- Sub: Constitution of a committee consisting of representatives of MoEF&CC, Central Pollution Control Board, Maharashtra Coastal Zone Management Authority and Maharashtra Pollution Control Board.
- Ref: 1. Original Application No. 15/2020 (WZ) With Original Application No. 17/2020 (WZ) Krishna Marathe Applicant(s) Versus Union of India & Ors. Respondent(s) WITH Krishna Marathe & Ors. Applicant(s) Versus Union of India & Ors. Respondent(s).  
 2. Order passed by Honorable Tribunal in O.A. No. 15/2020 (WZ) & 17/2020 (WZ) dated July 10, 2020.

Sir,

Shri. Krishna Marathe in his Original Application has raised the issue of violation of the Environmental Clearance condition causing huge damage to ecology and environment of the area by M/s. *Gogate Minerals* which started the business in 1952 and continuing the dumping of waste material in the Arabian Sea, creating a new land and other environmental issues.

In view of the Order passed by Honorable Tribunal in O.A. No. 15/2020 (WZ) & 17/2020 (WZ) dated July 10, 2020, following committee has been constituted.

Shri. Suresh Kumar Adapa  
 Scientist'D/Jt.Director, Ministry of Environment, Forests and Climate Change  
 West Central Regional Office, Ground Floor, Eastern Wing,  
 New Secretariat Building-Opposite Old VCA Stadium,  
 Civil Lines -Nagpur-440001.  
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 Scientist E, Regional Director Office, Pune  
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Shri. Ravindra Andhale  
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Mobile No. 09892667704

The further course of actions to be undertaken by this committee will be determined through mutual consultation via Email and video conferencing.

This letter is issued with the approval of competent authority of the Board

Yours Faithfully

*Ravindra Andhale* 27/08/2020

Ravindra Andhale  
Regional Officer, Kolhapur  
Maharashtra Pollution Control Board

Enclosure: Order dated July 10, 2020

Copy fwc's to:

1. Shri. Suresh Kumar Adapa  
Scientist'D/Jt. Director, Ministry of Environment, Forests and Climate Change
2. Shri. S. Lokhande,  
Scientist E,  
Regional Director Office, Pune  
Central Pollution Control Board,
3. Shri. Rupesh Mahale  
Coastal officer, MCZMA
4. Shri. Anand Billade  
Coastal officer, MCZMA

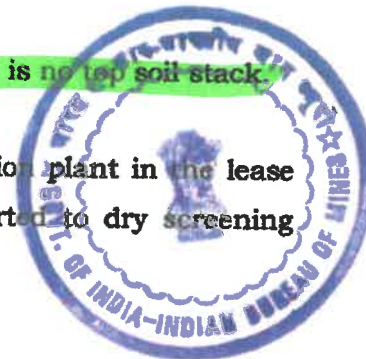


**4.5 Top Soil Management:**

No top soil exists with in the mine lease, hence there is no top soil stack.

**4.6 Tailing Dam Management:**

Not applicable as there is no processing/beneficiation plant in the lease area. The rom produced in mine will be transported to dry screening plant which is located NE side of the lease.

**4.7 Infrastructure:**

The lessee has constructed office & guest house. These are to be renovated. Mine roads will be maintained during the life of the mine. The power lines and telephone lines passing through the lease area.

**4.8 Disposal of Mining Machinery:**

Not applicable. Since the expected Mineable reserve will last for 20years.

**4.9 Safety and Security:**

Safety measures are taken to protect mine workings by constructing appropriate fencing all around the periphery of the mine. Entry to the mine is strictly by authorization only.

**4.10 Disaster Management and Risk Assessment:**

No disaster due to landslide, subsidence, fire, and seismic activity is anticipated. However, the details of contact numbers of Police station, Fire station, Hospitals and ambulance services are being maintained with the manager of the mines who is to be contacted at any emergency situation.

**Disaster:**

Accidents with 10 or more fatalities are termed as disaster. Disaster is an unexpected, sudden occurrence including fire, resulting from abnormal development in course of mining activity, leading to serious, danger to workers, public, or the environment. In the opencast Mines, risks like land slides, inundation and fire occurrence / likelihood will be unlikely and if it occurs, the severity will be extremely harmful, leading to disaster.



#### **4.5 Top Soil Management:**

No top soil exists within the mine lease, Hence there is no top soil stack.

#### **4.6 Tailing Dam Management:**

Not applicable as there is no processing/beneficiation plant in the lease area. The ROM produced in mine will be transported to mobile dry screening plant which is located NE side of the lease.

#### **4.7 Infrastructure:**

The lessee has constructed office, guest house workshop, etc outside the ultimate limit within the lease. Please refer the Surface Plan **Plate no. 4** for the locations. The main 11 kva power line is passing along the eastern boundary of the lease. The power is tapped from this main line to the transformer at the south of the lease and from here power is supplied to the offices, workshop and the barracks as shown in the surface plan. Mine roads will be maintained during the life of the mine.

#### **4.8 Disposal of Mining Machinery**

Not applicable. Since the expected Mineable reserve will last for 13 years.

#### **4.9 Safety and Security:**

Safety measures are taken to protect mine workings by constructing appropriate fencing all around the periphery of the mine. Entry to the mine is strictly by authorization only.



8.2 **Topsoil Management:** The topsoil available at the site and its utilization may be described.

Presently no topsoil is generated from the mine as the entire mineralized portion so far explored is broken up.

8.3 **Tailings Dam Management:** The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described.

No tailing dam shall be present in this area

8.3.4 **Acid mine drainage, if any and its mitigative measures.**

No acid mine drainage is involved.

8.3.5 **Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism.**

No surface subsidence is involved.

The information on protective measures for reclamation and rehabilitation works year wise may be provided as per the following table.

2020-21

**8.3.2 Topsoil Management:** The topsoil available at the site and its utilization may be described.

During 2020-21, the mining will be carried out in already broken up area only. Hence, there is no top soil available.

**8.3.3 Tailings Dam Management:** The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc., arrangement for surplus water overflow along with detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described.

Not Applicable since, Iron ore produced is dry screened by deploying mobile dry screening plants and product is lumps (+10mm) , and fines (-10mm) There is no generation of tailing.

**8.3.4 Acid mine drainage, if any and its mitigative measures.**

Regular monitoring of surface and groundwater indicated that there is no generation of acid mine drainage observed in this mine







## ग्रामपंचायत कार्यालय, रेडी

ता. वेंगुर्ला जि. सिंधुदुर्ग (महाराष्ट्र) फोन (०२३६६) २६८२५६

E mail – redigp07@gmail.com

जा. क्र. /१०१६/२०/२१

दिनांक – २१/१०/२०२०

प्रति,

मा. निरीक्षण समिती,

विषय – रेडी कनयाळ येथील सर्व्हे नं. ५८ व रेडी येथील सर्व्हे नं. १५ चा १ बाबत.

संदर्भ – १.राष्ट्रीय हरित लवाद मुळ ल. क्र. १५/२०२० व १७/२०२० संबंधित दिनांक

२०/१०/२०२० रोजी निरीक्षण समितीबरोबर झालेली भेट

महाशय,

वरील संदर्भित विषयानुसार आपणास कळविण्यात येते कि, आपल्या समितीशी झालेल्या चर्चेनुसार आम्ही गावातील ज्येष्ठ नागरिकांशी चर्चा केली. त्यानुसार मला मिळालेल्या माहितीप्रमाणे कनयाळ येथील सर्व्हे नं. ५८ व रेडी येथील सर्व्हे नं. १५ चा १ येथे खाणीतील माती सन १९९० पर्यंत टाकण्यात आली होती. त्यानंतर कुठल्याही कंपनीने आतापर्यंत खाणीतील मातीचा भराव कनयाळ येथील सर्व्हे नं. ५८ व रेडी येथील सर्व्हे नं. १५ चा १ येथे टाकलेला नाही. कनयाळ येथील सर्व्हे नं. ५८ व रेडी येथील सर्व्हे नं. १५ चा १ हे वनविभागाच्या मालकी हक्काचे असून त्यावर वनविभागाचा ताबा आहे.

सदरच्या खाणकामामुळे रेडी गावात कोणत्याही प्रकारचे आजार व रोगराई आजतागायत निदर्शनास आलेली नाही. सदर बाब आपल्या माहितीस्तव सादर.

महाशयांस कळावे.

  
सरपंच  
ग्रामपंचायत रेडी  
ता. वेंगुर्ला, जि. सिंधुदुर्ग



**The Photographs Of Sign Boards About the Ownership And Possession of S.No. 15 and 58 Displayed by the Forest Department, Government of Maharashtra**



**Details is pits as on 01-12-2019:**


| S. No | Pit/Area | Length (m) | Width (m) | Highest Level (m) | Lowest Level (m) | No. of Benches | Remarks                           |
|-------|----------|------------|-----------|-------------------|------------------|----------------|-----------------------------------|
| 1     | 203      | 804        | 590       | 51.8              | -53.685          | 17             | Presently Working                 |
| 2     | Mauli    | 333        | 130       | 49.5              | 8.0              | 09             | Old non working pit, water logged |

The photographs of mine workings, protective measures and plantation carried out are given in Photograph section.

A complete layout of the mine showing proposed mine workings, layout of benches, are shown on year wise pit design plan and sections enclosed as **Plate Nos. 7 & 8 A to 8D.**

**Proposed Mine Working:**

As per the recommendation in the geotechnical slope stability study, it is proposed that mine will be worked by forming systematic benches in ore and overburden maintaining a maximum optimum pit slope of  $30^{\circ}$ .

The height of the benches maintained will be 6 meters and width will vary between 8 to 11 meters. Based on size and capacity of the machinery, mine approach road and mine haulage road with a width of 11 meters and with a gradient of 1:16 will be maintained. The mining operations will be carried out in two shifts.

During the ensuing block period up to 31-03-2021 of modifications in the approved Modified Mining Plan, mining activities will be confined between sections 00 E to 700 E. Lowest pit level will be at -66 m RL. Number of benches in overburden and ore will be around 19 from 50m RL to -66 m. Redi Iron ore Mine ( block I) of M/s Gogte Minerals shares common boundary along its Northern side of the Mining Lease with the iron ore Mining Lease of M/s Minerals & Metals. Lessee has an understanding with M/s Minerals and Metals for obtaining permission from DGMS to extend workings up to the respective Mine boundaries.





# राष्ट्रीय जल विज्ञान संस्थान

(जल संसाधन नदी विकास और गंगा संरक्षण मंत्रालय भारत सरकार)

## National Institute of Hydrology

(Ministry of Water Resources, RD & GR, Govt. of India)

### कठोर शिला क्षेत्रीय केंद्र

### Hard Rock Regional Centre

मेन रोड, विश्वेश्वरय्या नगर, बेलगावि - ५९० ०१९ (कर्नाटक)

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ई-मेल : hrrcnih@gmail.com

संख्या No.

दिनांक Date : 07/02/2020

## CERTIFICATE

To whomsoever it may concern, this is to certify that National Institute of Hydrology, Hard Rock Regional Center (Under Ministry of Jalashakthi, Dept. of WR, GR & RD) has carried out preliminary investigations as a part of the **“Comprehensive Study on Hydrogeological Studies in and Around Redi Iron Ore Mine (Block-I) of M/S Gogte Minerals, Redi Village, Vengurla, Taluk, Sindhudurg District, Maharashtra”** and the results of the study is submitted herewith.

  
**B. K. Purandara**  
**Scientist F & PI**

मुख्यालय : राष्ट्रीय जल विज्ञान संस्थान, जल विज्ञान भवन, रूडकी - २४७ ६६७ (उत्तरांचल) भारत

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दूरभाषा / Phone : 01332 - 272106, फैक्स / Fax : 01332 - 272123. ई-मेल / E-mail : dir.nihr@gov.in / Web : nihrroorkee.gov.in



## CHAPTER V

### CONCLUSION

1. From the preliminary investigation it is found that there is no direct impact on water levels and groundwater quality due to mining.
2. The estimation of seawater intrusion using Ghyben Herzberg formula indicated that there is no intrusion of seawater in the study area upto 400m to 500m.
3. From the conceptual modelling, it is understood that there is no threat of contamination under defined hydrological conditions.



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ISO 9001 : 2015 AND BS OHSAS 18001 : 2007 Certification Valid upto 18.03.2021



ISO 9001 : 2015  
12-Q-1800012-TTC  
BS-OHSAS-18001-2007  
12-0-1800013-TTC

Table No. 2

## WATER ANALYSIS REPORT

MES/W/FTR/11/00

MES/MS/WRN/76

|                     |                                                         |
|---------------------|---------------------------------------------------------|
| Name of the Project | : Redi (203) Iron Ore Mine                              |
| Name of the Client  | : M/s. Gogte Minerals                                   |
| Month               | : July 2020                                             |
| Date of sampling    | : 21.07.2020                                            |
| Date of Report      | : 12.08.2020                                            |
| Report No           | : MES/MS/WRN/76                                         |
| Ref                 | : Environmental (P) Rules, 1986 SCHEDULE I,- 01.01.2016 |

| Sl. No. | Parameters                                                         | Method of Testing             | General Standards For Effluent Discharge of Environmental Pollutants | Samples<br>SW1 |
|---------|--------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------|----------------|
| 1       | pH                                                                 | IS 3025 (Part-11)             | 6.0-9.0                                                              | 7.14           |
| 2       | Biochemical Oxygen Demand mg/l, BOD <sub>3</sub> 27 <sup>o</sup> C | IS 3025 (Part-44)             | 30                                                                   | 3              |
| 3       | Chemical Oxygen Demand (COD) mg/l                                  | IS 3025 (Part-58)             | 250                                                                  | 30             |
| 4       | Total Suspended Solids, mg/l                                       | IS 3025 (Part-17)             | 100                                                                  | 10             |
| 5       | Fixed Dissolved Solids (FDS) mg/l                                  | IS 3025(part 18)              | 2100                                                                 | 212            |
| 6       | Temperature <sup>o</sup> C                                         | IS 3025 (Part-9)              | Shall not 5 <sup>o</sup> c above the receiving water temp            | 25             |
| 7       | Oil & Grease, mg/l                                                 | IS 3025 (Part-39)             | 10                                                                   | <1             |
| 8       | Ammonical Nitrogen, mg/l                                           | IS 3025 (Part-34)             | 50                                                                   | <0.1           |
| 9       | Total Kjeda hl Nitrogen, mg/l                                      | IS 3025 (Part-34)             | 50                                                                   | <0.5           |
| 10      | Nitrate Nitrogen (as N), mg/l                                      | IS 3025 (Part-34)             | 10                                                                   | 0.2            |
| 11      | Phosphates (as P ), mg/l                                           | IS 3025 (Part-31)             | 5                                                                    | <0.1           |
| 12      | Chlorides (as Cl), mg/l                                            | IS 3025 (Part-32)             | 1000                                                                 | 116            |
| 13      | Sulphates (as SO <sub>4</sub> ) mg/l                               | IS 3025 (Part-24)             | 1000                                                                 | 16             |
| 14      | Fluoride (as F), mg/l                                              | IS 3025 (Part-60)             | 2                                                                    | <0.1           |
| 15      | Sulphide (as S), mg/l                                              | IS 3025 (Part-29)             | 2                                                                    | <0.01          |
| 16      | Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l     | IS 3025 (Part-43)             | 1                                                                    | <0.001         |
| 17      | Total Residual Chlorine, mg/l                                      | IS 3025 (Part-26)             | 1                                                                    | <0.1           |
| 18      | Zinc (as Zn), mg/l                                                 | IS 3025 (Part-49)             | 5                                                                    | <0.05          |
| 19      | Iron (as Fe), mg/l                                                 | IS 3025 (Part-53)             | 3                                                                    | 0.05           |
| 20      | Copper (as Cu), mg/l                                               | IS 3025 (Part-42)             | 3                                                                    | <0.03          |
| 21      | Trivalent Chromium (as Cr <sup>+3</sup> ),mg/l                     | IS 3025 (Part-52)             | 2                                                                    | <0.03          |
| 22      | Manganese (as Mn), mg/l                                            | IS 3025 (Part-59)             | 2                                                                    | <0.03          |
| 23      | Nickel (as Ni), mg/l                                               | IS 3025 (Part-54)             | 3                                                                    | <0.01          |
| 24      | Arsenic (as As), mg/l                                              | IS 3025 (Part-37)             | 0.2                                                                  | <0.002         |
| 25      | Cyanide (as CN), mg/l                                              | IS 3025 (Part-27)             | 0.2                                                                  | <0.01          |
| 26      | Vanadium (as V), mg/l                                              | APHA 21 <sup>st</sup> Edition | 0.2                                                                  | <0.001         |
| 27      | Lead (as Pb), mg/l                                                 | IS 3025 (Part-47)             | 0.1                                                                  | <0.005         |
| 28      | Hexavalent Chromium (as Cr <sup>+6</sup> ) mg/l                    | IS 3025 (Part-52)             | 2                                                                    | <0.03          |
| 29      | Selenium (as Se), mg/l                                             | IS 3025 (Part-56)             | 0.05                                                                 | <0.005         |
| 30      | Cadmium (as Cd), mg/l                                              | IS 3025 (Part-41)             | 2                                                                    | <0.002         |
| 31      | Mercury (as Hg), mg/l                                              | IS 3025 (Part-48)             | 0.01                                                                 | <0.0005        |

Sample Code : SW1 - Survey No. 203 Lease No.1 Pit water

Samples Collected & Analysed by Mineral Engineering Services, Ballari

*(M.R. DURGA PRASAD)*  
**GOVT. ANALYST**

*(M.S. RAJU)*  
**HEAD OF LABORATORY**

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ISO 9001 : 2015  
12-Q-1800012-TIC  
BS-OHSAS-18001-2007  
12-0-1800013-TIC

Table No. 3

## WATER ANALYSIS REPORT

MES/W/FTR/12/00

Name of the Project : Redi (203) Iron Ore Mine  
Name of the Client : M/s. Gogte Minerals  
Month : July 2020  
Date of sampling : 21.07.2020  
Date of Report : 12.08.2020  
Report No : MES/MS/WRN/76  
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)

| Sl.No. | Parameters                                                         | Method of Testing     | Limits For Stream Water Standards | Result |        |        |
|--------|--------------------------------------------------------------------|-----------------------|-----------------------------------|--------|--------|--------|
|        |                                                                    |                       |                                   | SW2    | SW3    | SW4    |
| i      | pH                                                                 | IS:3025(Part-11)      | 6.5 to 8.5                        | 7.11   | 7.00   | 7.22   |
| ii     | Dissolved Oxygen (as O <sub>2</sub> ), mg/l, Min                   | IS:3025(Part-38)      | 4                                 | 5.4    | 5.7    | 5.3    |
| iii    | Biochemical Oxygen Demand (as O <sub>2</sub> ), mg/l, Max          | IS:3025(Part-44)      | 3                                 | 1.6    | 1.5    | 1.5    |
| iv     | Total Coliform (mpn/100ml), Max                                    | IS:1622               | 5000                              | 48     | 44     | 50     |
| v      | Colour (Hazen Units), Max                                          | IS:3025(Part-4)       | 300                               | 5      | 5      | 5      |
| vi     | Fluoride (as F),mg/l, Max                                          | IS:3025(Part-60)      | 1.5                               | <0.1   | <0.1   | <0.1   |
| vii    | Cadmium (as Cd), mg/l, Max                                         | IS:3025(Part-41)      | 0.01                              | <0.002 | <0.002 | <0.002 |
| viii   | Chloride (as Cl),mg/l, Max                                         | IS:3025(Part-32)      | 600                               | 380    | 180    | 142    |
| ix     | Chromium (as Cr <sup>+6</sup> ), mg/l, Max                         | IS:3025(Part-52)      | 0.05                              | <0.03  | <0.03  | <0.03  |
| x      | Cyanides (as CN), mg/l, Max                                        | IS:3025(Part-27)      | 0.05                              | <0.01  | <0.01  | <0.01  |
| xi     | Total Dissolved Solids (mg/l), Max                                 | IS:3025(Part-16)      | 1500                              | 879    | 436    | 360    |
| xii    | Selenium (as Se), mg/l, Max                                        | IS:3025(Part-56)      | 0.05                              | <0.005 | <0.005 | <0.005 |
| xiii   | Sulphates as SO <sub>4</sub> (mg/l), Max                           | IS:3025(Part-24)      | 400                               | 40.0   | 40.0   | 30.0   |
| xiv    | Lead (as Pb) mg/l, Max                                             | IS:3025(Part-47)      | 0.1                               | <0.005 | <0.005 | <0.005 |
| xv     | Copper (as Cu),mg/l, Max                                           | IS:3025(Part-42)      | 1.5                               | <0.01  | <0.01  | <0.01  |
| xvi    | Arsenic as As (mg/l), Max                                          | IS:3025(Part-37)      | 0.2                               | <0.002 | <0.002 | <0.002 |
| xvii   | Iron (as Fe),mg/l, MAX                                             | IS:3025(Part-53)      | 50                                | 0.05   | 0.08   | 0.05   |
| xviii  | Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max | IS:3025(Part-43)      | 0.005                             | <0.001 | <0.001 | <0.001 |
| xix    | Zinc (as Zn),mg/l, Max                                             | IS:3025(Part-49)      | 15                                | <0.005 | <0.005 | <0.005 |
| xx     | Insecticides, mg/l, Max                                            | APHA 21 <sup>st</sup> | Absent                            | NA     | NA     | NA     |
| xxi    | Anionic detergents (as MBAS),mg/l, Max                             | Annex K of IS 13248   | 1                                 | <0.1   | <0.1   | <0.1   |
| xxii   | Oils and grease, mg/l, Max                                         | IS:3025(Part-39)      | 0.1                               | <0.01  | <0.01  | <0.01  |
| xxiii  | Nitrates (as NO <sub>3</sub> ),mg/l, Max                           | IS:3025(Part-34)      | 50                                | 1.00   | 1.20   | 1.50   |
| xxiv   | Alpha Emitters (μcurie/ml), Max                                    | APHA 21 <sup>st</sup> | 10 <sup>-9</sup>                  | NA     | NA     | NA     |
| xxv    | Beta Emitters (μcurie/ml), Max                                     | APHA 21 <sup>st</sup> | 10 <sup>-8</sup>                  | NA     | NA     | NA     |

### SAMPLE CODE :

SW2 - Kanyal tank water

SW3 - Nallah water near Kanyalwadi village

SW4- Spring water near Hanuman temple Kanyalwadi village

Samples Collected & Analysed by Mineral Engineering Services, Ballari Note : NA - Not Analysed

  
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(M.S. RAJU)  
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ISO 9001 : 2015

12-Q-1800012-TIC

BS-OHSAS-18001-2007

12-Q-1800013-TIC

Table No. 4 b

## WATER ANALYSIS REPORT

MES/W/FTR/13/00

Name of the Project : Redi (203) Iron Ore Mine  
 Name of the Client : M/s. Gogte Minerals  
 Month : July 2020  
 Date of sampling : 21.07.2020  
 Date of Report : 12.08.2020  
 Report No : MES/MS/WRN/78  
 Ref : IS:10500-2012 Norms (Drinking Water Standards)

| Sl. No. | Parameters                                                | Method of Testing                | Desirable Limits | Permissible Limits | Result    |           |           |
|---------|-----------------------------------------------------------|----------------------------------|------------------|--------------------|-----------|-----------|-----------|
|         |                                                           |                                  |                  |                    | GW4       | GW5       | GW6       |
| i       | Colour (Hazen Units), Max                                 | IS:3025 (Part-4)                 | 5                | 15                 | 1         | <1        | 1         |
| ii      | Odour                                                     | IS:3025 (Part-5)                 | Agreeable        | Agreeable          | Agreeable | Agreeable | Agreeable |
| iii     | pH                                                        | IS:3025 (Part-11)                | 6.5 to 8.5       | 6.5 - 8.5          | 6.62      | 6.60      | 7.11      |
| iv      | Taste                                                     | IS:3025 (Part- 8)                | Agreeable        | Agreeable          | Agreeable | Agreeable | Agreeable |
| v       | Turbidity,NTU, Max                                        | IS:3025 (Part-10)                | 1                | 5                  | 0.6       | 1.0       | 0.5       |
| vi      | Total Dissolved Solids,mg/l, Max                          | IS:3025 (Part-16)                | 500              | 2000               | 130       | 120       | 250       |
| vii     | Aluminium (as Al), Max                                    | IS:3025 (Part-55)                | 0.03             | 0.2                | <0.01     | <0.01     | <0.01     |
| viii    | Ammonia (as total Ammonia -N),mg/l, Max                   | IS:3025 (Part-34)                | 0.5              | 0.5                | <0.1      | <0.1      | <0.1      |
| ix      | Anionic Detergents (as MBAS),mg/l, Max                    | Annex K of Is:13428              | 0.2              | 1.0                | <0.1      | <0.1      | <0.1      |
| x       | Barium (as Ba), mg/l, Max                                 | IS:15302 & APHA 21 <sup>st</sup> | 0.7              | 0.7                | <0.05     | <0.05     | <0.05     |
| xi      | Boron (as B), mg/l, Max                                   | IS:3025 (Part-57)                | 0.5              | 1                  | <0.1      | <0.1      | <0.1      |
| xii     | Calcium (as Ca),mg/l, Max                                 | IS:3025 (Part-40)                | 75               | 200                | 14        | 9.6       | 44        |
| xiii    | Chloramines (as Cl <sub>2</sub> ), mg/l, Max              | APHA 21 <sup>st</sup>            | 4.0              | 4.0                | NA        | NA        | NA        |
| xiv     | Chloride as Cl (mg/l),mg/l, Max                           | IS:3025 (Part-32)                | 250              | 1000               | 19        | 62.0      | 120       |
| xv      | Copper (as Cu),mg/l, Max                                  | IS:3025 (Part-42)                | 0.05             | 1.5                | <0.01     | <0.01     | <0.01     |
| xvi     | Fluoride (as F),mg/l, Max                                 | IS:3025 (Part-60)                | 1                | 1.5                | <0.1      | <0.1      | <0.1      |
| xvii    | Residual, Free Chlorine,mg/l, Max                         | IS:3025 (Part-26)                | 0.2              | 1                  | <0.1      | <0.1      | <0.1      |
| xviii   | Iron (as Fe),mg/l, Max                                    | IS:3025 (Part-53)                | 1.0              | 1.0                | <0.05     | <0.05     | <0.05     |
| xix     | Magnesium (as Mg),mg/l, Max                               | IS:3025 (Part-46)                | 30               | 100                | 4.9       | 3.9       | 17        |
| xx      | Manganese (as Mn),mg/l, Max                               | IS:3025 (Part-59)                | 0.1              | 0.3                | <0.03     | <0.03     | <0.03     |
| xxi     | Mineral Oil,mg/l, Max                                     | Clause 6 of IS 3025 (part -39)   | 0.5              | 0.5                | <0.01     | <0.01     | <0.01     |
| xxii    | Nitrates (as NO <sub>3</sub> ),mg/l, Max                  | IS:3025 (Part-34)                | 45               | 45                 | 0.5       | 13.0      | 0.4       |
| xxiii   | Phenolics (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max | IS:3025 (Part-43)                | 0.001            | 0.002              | <0.001    | <0.001    | <0.001    |
| xxiv    | Selenium (as Se),mg/l, Max                                | IS:3025 (Part-56)                | 0.01             | 0.01               | <0.005    | <0.005    | <0.005    |
| xxv     | Silver (as Ag), mg/l, Max                                 | Annex J of Is:13428              | 0.1              | 0.1                | <0.002    | <0.002    | <0.002    |
| xxvi    | Sulphates (as SO <sub>4</sub> ),mg/l, Max                 | IS:3025 (Part-24)                | 200              | 400                | 12.6      | 1.9       | 10        |
| xxvii   | Sulphide (as H <sub>2</sub> S), mg/l, Max                 | IS:3025 (Part-29)                | 0.05             | 0.05               | <0.01     | <0.01     | <0.01     |
| xxviii  | Alkalinity (as CaCO <sub>3</sub> ),mg/l, Max              | IS:3025 (Part-23)                | 200              | 600                | 40        | <2        | 22        |
| xxix    | Total Hardness (as CaCO <sub>3</sub> ),mg/l, Max          | IS:3025 (Part-21)                | 200              | 600                | 50        | 40        | 180       |
| xxx     | Zinc (as Zn),mg/l, Max                                    | IS:3025 (Part-49)                | 5                | 15                 | <0.005    | <0.005    | <0.005    |
| xxxi    | Cadmium (as Cd),mg/l, Max                                 | IS:3025 (Part-41)                | 0.003            | 0.003              | <0.002    | <0.002    | <0.002    |
| xxxii   | Cyanide (as CN),mg/l, Max                                 | IS:3025 (Part-27)                | 0.05             | 0.05               | <0.01     | <0.01     | <0.01     |
| xxxiii  | Lead (as Pb),mg/l, Max                                    | IS:3025 (Part-47)                | 0.01             | 0.01               | <0.005    | <0.005    | <0.005    |
| xxxiv   | Molybdenum (as Mo), mg/l, Max                             | APHA 21 <sup>st</sup>            | 0.07             | 0.07               | NA        | NA        | NA        |
| xxxv    | Mercury (as Hg),mg/l, Max                                 | IS:3025 (Part-48)                | 0.001            | 0.001              | <0.0005   | <0.0005   | <0.0005   |
| xxxvi   | Nickel (as Ni),mg/l, Max                                  | IS:3025 (Part-54)                | 0.02             | 0.02               | 0.015     | <0.01     | <0.01     |
| xxxvii  | Pesticides,mg/l, Max                                      | APHA 21 <sup>st</sup>            | Absent           | 0.001              | NA        | NA        | NA        |
| xxxviii | Polychlorinated biphenyls mg/l, Max                       | APHA 21 <sup>st</sup> Edition    | 0.0005           | 0.0005             | NA        | NA        | NA        |
| xxix    | Polynuclear Aromatic Hydrocarbons (as PAH),mg/l,          | APHA 21 <sup>st</sup> Edition    | 0.0001           | 0.0001             | NA        | NA        | NA        |
| XL      | Arsenic (as As),mg/l, Max                                 | IS:3025 (Part-37)                | 0.01             | 0.01               | <0.002    | <0.002    | <0.002    |
| XLi     | Chromium (as Cr <sup>+6</sup> ),mg/l, Max                 | IS:3025 (Part-52)                | 0.05             | 0.05               | <0.03     | <0.03     | <0.03     |
| XLii    | Trihalomethanes,mg/l, Max                                 | APHA 21 <sup>st</sup>            | --               | --                 | NA        | NA        | NA        |
| XLiii   | Radioactive materials,Bq/l,mg/l                           | APHA 21 <sup>st</sup>            | --               | --                 | NA        | NA        | NA        |
| XLiv    | Total Coliform (/100ml)                                   | IS:1622                          | Absent           | Absent             | Absent    | Absent    | Absent    |
| XLv     | E-Coli (cfu/100ml)                                        | IS:1622                          | Absent           | Absent             | Absent    | Absent    | Absent    |
| XLv     | Water levels in well from surface (m)                     | --                               | --               | --                 | 0.30      | 1.00      | --        |

SAMPLE CODE :GW4 - Kanyalwadi village open well water GW5 - Gaontala village open well GW6 -Tap water (near mines office)  
 Samples Collected & Analysed : Mineral Engineering Services, Ballari NA - Not Analysed

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# MINERAL ENGINEERING SERVICES

(Recognised by GOI, MoEF&CC under E(P) Act 1986 Vide Gazette Notification

No. SO 857 (E) dated 26.02.2018. Recognition valid upto 25.02.2023

ISO 9001 : 2015 AND BS OHSAS 18001 : 2007 Certification Valid upto 18.03.2021



ISO 9001 : 2015

12-Q-1800012-TIC

BS-OHSAS-18001-2007

12-Q-1800013-TIC

Table No. 4 a

## WATER ANALYSIS REPORT

MES/W/FR/13/00

Name of the Project : Redi (203) Iron Ore Mine  
Name of the Client : M/s. Gogte Minerals  
Month : July 2020  
Date of sampling : 21.07.2020  
Date of Report : 12.08.2020  
Report No : MES/MS/WRN/77  
Ref : IS:10500-2012 Norms (Drinking Water Standards)

| Sl. No. | Parameters                                                | Method of Testing                | Desirable Limits | Permissible Limits | Result    |           |           |
|---------|-----------------------------------------------------------|----------------------------------|------------------|--------------------|-----------|-----------|-----------|
|         |                                                           |                                  |                  |                    | GW1       | GW2       | GW3       |
| i       | Colour (Hazen Units), Max                                 | IS:3025 (Part-4)                 | 5                | 15                 | <1        | <1        | <1        |
| ii      | Odour                                                     | IS:3025 (Part-5)                 | Agreeable        | Agreeable          | Agreeable | Agreeable | Agreeable |
| iii     | pH                                                        | IS:3025 (Part-11)                | 6.5 to 8.5       | 6.5 - 8.5          | 6.68      | 6.80      | 6.82      |
| iv      | Taste                                                     | IS:3025 (Part- 8)                | Agreeable        | Agreeable          | Agreeable | Agreeable | Agreeable |
| v       | Turbidity,NTU, Max                                        | IS:3025 (Part-10)                | 1                | 5                  | 0.2       | 1.3       | 1.1       |
| vi      | Total Dissolved Solids,mg/l, Max                          | IS:3025 (Part-16)                | 500              | 2000               | 60        | 270       | 180       |
| vii     | Aluminium (as Al), Max                                    | IS:3025 (Part-55)                | 0.03             | 0.2                | <0.01     | <0.01     | <0.01     |
| viii    | Ammonia (as total Ammonia -N),mg/l, Max                   | IS:3025 (Part-34)                | 0.5              | 0.5                | <0.1      | <0.1      | <0.1      |
| ix      | Anionic Detergents (as MBAS),mg/l, Max                    | Annex K of IS:13428              | 0.2              | 1.0                | <0.1      | <0.1      | <0.1      |
| x       | Barium (as Ba), mg/l, Max                                 | IS:15302 & APHA 21 <sup>st</sup> | 0.7              | 0.7                | <0.05     | <0.05     | <0.05     |
| xi      | Boron (as B), mg/l, Max                                   | IS:3025 (Part-57)                | 0.5              | 1                  | <0.1      | <0.1      | <0.1      |
| xii     | Calcium (as Ca),mg/l, Max                                 | IS:3025 (Part-40)                | 75               | 200                | 48        | 32        | 20        |
| xiii    | Chloramines (as Cl <sub>2</sub> ), mg/l, Max              | APHA 21 <sup>st</sup>            | 4.0              | 4.0                | NA        | NA        | NA        |
| xiv     | Chloride as Cl (mg/l),mg/l, Max                           | IS:3025 (Part-32)                | 250              | 1000               | 18        | 20        | 30        |
| xv      | Copper (as Cu),mg/l, Max                                  | IS:3025 (Part-42)                | 0.05             | 1.5                | <0.01     | <0.01     | <0.01     |
| xvi     | Fluoride (as F),mg/l, Max                                 | IS:3025 (Part-60)                | 1                | 1.5                | <0.1      | <0.1      | <0.1      |
| xvii    | Residual, Free Chlorine,mg/l, Max                         | IS:3025 (Part-26)                | 0.2              | 1                  | <0.1      | <0.1      | <0.1      |
| xviii   | Iron (as Fe),mg/l, Max                                    | IS:3025 (Part-53)                | 1.0              | 1.0                | <0.05     | <0.05     | <0.05     |
| xix     | Magnesium (as Mg),mg/l, Max                               | IS:3025 (Part-46)                | 30               | 100                | 2.4       | 12.2      | 7.3       |
| xx      | Manganese (as Mn),mg/l, Max                               | IS:3025 (Part-59)                | 0.1              | 0.3                | <0.03     | <0.03     | <0.03     |
| xxi     | Mineral Oil,mg/l, Max                                     | Clause 6 of IS 3025 (part -39)   | 0.5              | 0.5                | <0.01     | <0.01     | <0.01     |
| xxii    | Nitrates (as NO <sub>3</sub> ),mg/l, Max                  | IS:3025 (Part-34)                | 45               | 45                 | 3.6       | 18.0      | 9.8       |
| xxiii   | Phenolics (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max | IS:3025 (Part-43)                | 0.001            | 0.002              | <0.001    | <0.001    | <0.001    |
| xxiv    | Selenium (as Se),mg/l, Max                                | IS:3025 (Part-56)                | 0.01             | 0.01               | <0.005    | <0.005    | <0.005    |
| xxv     | Silver (as Ag), mg/l, Max                                 | Annex J of IS:13428              | 0.1              | 0.1                | <0.002    | <0.002    | <0.002    |
| xxvi    | Sulphates (as SO <sub>4</sub> ),mg/l, Max                 | IS:3025 (Part-24)                | 200              | 400                | 3.0       | 46.6      | 19.6      |
| xxvii   | Sulphide (as H <sub>2</sub> S) , mg/l, Max                | IS:3025 (Part-29)                | 0.05             | 0.05               | <0.01     | <0.01     | <0.01     |
| xxviii  | Alkalinity (as CaCO <sub>3</sub> ),mg/l, Max              | IS:3025 (Part-23)                | 200              | 600                | 14        | 48        | 62        |
| xxix    | Total Hardness (as CaCO <sub>3</sub> ),mg/l, Max          | IS:3025 (Part-21)                | 200              | 600                | 22        | 130       | 80        |
| xxx     | Zinc (as Zn),mg/l, Max                                    | IS:3025 (Part-49)                | 5                | 15                 | <0.005    | <0.005    | <0.005    |
| xxxi    | Cadmium (as Cd),mg/l, Max                                 | IS:3025 (Part-41)                | 0.003            | 0.003              | <0.002    | <0.002    | <0.002    |
| xxxii   | Cyanide (as CN),mg/l, Max                                 | IS:3025 (Part-27)                | 0.05             | 0.05               | <0.01     | <0.01     | <0.01     |
| xxxiii  | Lead (as Pb),mg/l, Max                                    | IS:3025 (Part-47)                | 0.01             | 0.01               | <0.005    | <0.005    | <0.005    |
| xxxiv   | Molybdenum (as Mo), mg/l, Max                             | APHA 21 <sup>st</sup>            | 0.07             | 0.07               | NA        | NA        | NA        |
| xxxv    | Mercury (as Hg),mg/l, Max                                 | IS:3025 (Part-48)                | 0.001            | 0.001              | <0.0005   | <0.0005   | <0.0005   |
| xxxvi   | Nickel (as Ni),mg/l, Max                                  | IS:3025 (Part-54)                | 0.02             | 0.02               | <0.01     | <0.01     | <0.01     |
| xxxvii  | Pesticides,mg/l, Max                                      | APHA 21 <sup>st</sup>            | Absent           | 0.001              | NA        | NA        | NA        |
| xxxviii | Polychlorinated biphenyls mg/l, Max                       | APHA 21 <sup>st</sup> Edition    | 0.0005           | 0.0005             | NA        | NA        | NA        |
| xxix    | Polynuclear Aromatic Hydrocarbons (as PAH),mg/l,          | APHA 21 <sup>st</sup> Edition    | 0.0001           | 0.0001             | NA        | NA        | NA        |
| XL      | Arsenic (as As),mg/l, Max                                 | IS:3025 (Part-37)                | 0.01             | 0.01               | <0.002    | <0.002    | <0.002    |
| XLi     | Chromium (as Cr <sup>6+</sup> ),mg/l, Max                 | IS:3025 (Part-52)                | 0.05             | 0.05               | <0.03     | <0.03     | <0.03     |
| XLii    | Trihalomethanes,mg/l, Max                                 | APHA 21 <sup>st</sup>            | --               | --                 | NA        | NA        | NA        |
| XLiii   | Radioactive materials,Bq/l,mg/l                           | APHA 21 <sup>st</sup>            | --               | --                 | NA        | NA        | NA        |
| XLiv    | Total Coliform (/100ml)                                   | IS:1622                          | Absent           | Absent             | Absent    | Absent    | Absent    |
| XLv     | E-Coli (cfu/100ml)                                        | IS:1622                          | Absent           | Absent             | Absent    | Absent    | Absent    |
| XLv     | Water levels in well from surface (m)                     | --                               | --               | --                 | 1.20      | 2.10      | 1.00      |

SAMPLE CODE : GW1 - Thiracol village open well GW2 - Redi village open well GW3 - Shiroda village open well  
Samples Collected & Analysed : Mineral Engineering Services, Ballari NA - Not Analysed

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## Anyalysis Results of Well Water samples by MPC Board

**Date 03.06.2014**

| Date/Parameters        | Well Water of<br>Chandrakant Raut |
|------------------------|-----------------------------------|
| pH                     | 6.41                              |
| BOD 3 days 27°C        | 2.8                               |
| COD                    | 56.0                              |
| Suspended Solids       | 21.0                              |
| Oil & Grease           | BDL                               |
| Chloride               | 217.0                             |
| Sulphate               | 15.9                              |
| Total Dissolved Solids | 638.0                             |
| Dissolved oxygen       | 7.0                               |
| Iron                   | BDL                               |
| TRC                    | NIL                               |
| Mercury                | BDL                               |
| Lead                   | BDL                               |
| Cadmium                | BDL                               |
| Chromium+6             | BDL                               |
| Total Chromium         | BDL                               |
| Copper                 | BDL                               |
| Zinc                   | BDL                               |
| Nickel                 | BDL                               |
| Cyanide                | BDL                               |
| Flouride               | BDL                               |
| Phospahte              | 1.23                              |
| Manganses              | NA                                |
| Nitrate                | 1.19                              |

**Date: 15-10-2019**

| Date/Parameters  | OPEN WELL<br>BOMBADOCHIWADI | Open well of<br>Ramkrushna<br>Kanyalkar at<br>Kanyalwadi, Redi | OPEN WELL<br>TIVREWADI |
|------------------|-----------------------------|----------------------------------------------------------------|------------------------|
| pH               | 7.8                         | 7.8                                                            | 7.6                    |
| BOD 3 DAYS 27°C  | 3                           | 3                                                              | 3                      |
| COD              | 8                           | 8                                                              | 8                      |
| SUSPENDED SOLIDS | 10                          | 11                                                             | 10                     |
| TDS (mg/ltr)     | 374                         | 104                                                            | 155                    |
| IRON             | BDL                         | BDL                                                            | BDL                    |

| Date : 19-12-2019 |                                                         |                                                       |                                                |                          |
|-------------------|---------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|--------------------------|
| Date/Parameters   | Open well at Bomdojichiwadi Redi Near ZP Primary School | Open well of Ramkrushna Kanyalkar at Kanyalwadi, Redi | Open well at Tiwarewadi Redi near Datta Mandir | Well water Hudawadi Redi |
| pH                | 6.4                                                     | 4.1                                                   | 6.3                                            | 5.7                      |
| BOD 3 DAYS 27oC   | 2.4                                                     | 2.4                                                   | 2.4                                            | 2.4                      |
| COD               | 8                                                       | 8                                                     | 16                                             | 16                       |
| SUSPENDED SOLIDS  | 12                                                      | 10                                                    | 10                                             | 14                       |
| Chloride          | 135                                                     | 68                                                    | 83                                             | 195                      |
| sulphate          | NA                                                      | NA                                                    | NA                                             | NA                       |
| TDS (mg/ltr)      | 412                                                     | 374                                                   | 266                                            | 437                      |
| DISSOLVED OXYGEN  | 6.2                                                     | 6.1                                                   | 6                                              | 6                        |
| IRON              | 0.017                                                   | 0.021                                                 | 0.018                                          | 0.017                    |
| Conductivity      | 460                                                     | 405                                                   | 306                                            | 476                      |

| Date: 08-01-2020 |                          |                                                       |                     |
|------------------|--------------------------|-------------------------------------------------------|---------------------|
| Date/Parameters  | OPEN WELL BOMBADOCHIWADI | Open well of Ramkrushna Kanyalkar at Kanyalwadi, Redi | OPEN WELL TIVREWADI |
| pH               | 7.5                      | 6.8                                                   | 7.2                 |
| BOD 3 DAYS 27oC  | 2.4                      | 2.2                                                   | 2                   |
| COD              | 12                       | 8                                                     | 12                  |
| SUSPENDED SOLIDS | 10                       | 9                                                     | 11                  |
| OIL AND GREASE   | BDL                      | BDL                                                   | BDL                 |
| TDS (mg/ltr)     | 444                      | 256                                                   | 284                 |
| DISSOLVED OXYGEN | 6                        | 6.2                                                   | 6.7                 |
| IRON             | BDL                      | 0.41                                                  | BDL                 |
| ZINC             | BDL                      | 0.016                                                 | 0.002               |

| Date: 28-07-2020        |                          |                                                       |                     |                          |
|-------------------------|--------------------------|-------------------------------------------------------|---------------------|--------------------------|
| Date/Parameters         | OPEN WELL BOMBADOCHIWADI | Open well of Ramkrushna Kanyalkar at Kanyalwadi, Redi | OPEN WELL TIVREWADI | Well water Hudawadi Redi |
| pH                      | 6.7                      | 6.1                                                   | 6.6                 | 6.3                      |
| BOD 3 DAYS 27oC         | 3                        | 3.2                                                   | 4.6                 | 4.2                      |
| COD                     | 24                       | 28                                                    | 32                  | 32                       |
| SUSPENDED SOLIDS        | 12                       | 10                                                    | 12                  | 10                       |
| OIL AND GREASE          | BDL                      | BDL                                                   | BDL                 | BDL                      |
| TDS (mg/ltr)            | 672                      | 488                                                   | 620                 | 410                      |
| FREE AVAILABLE CHLORINE | NA                       | NA                                                    | NA                  | NA                       |
| PHOSPHATE               | 0.06                     | 0.04                                                  | 0.12                | 0.09                     |
| ZINC                    | BDL                      | BDL                                                   | BDL                 | BDL                      |
| IRON                    | 0.16                     | 0.14                                                  | 0.18                | 0.2                      |
| DISSOLVED OXYGEN        | 7                        | 6.8                                                   | 6.7                 | 7.1                      |



| Date: 15-09-2020 |                             |                                                                |                        |                                |
|------------------|-----------------------------|----------------------------------------------------------------|------------------------|--------------------------------|
| Date/Parameters  | OPEN WELL<br>BOMBADOCHIWADI | Open well of<br>Ramkrushna<br>Kanyalkar at<br>Kanyalwadi, Redi | OPEN WELL<br>TIVREWADI | Well water<br>Hudawadi<br>Redi |
| pH               | 6.2                         | 5.4                                                            | 6                      | 5.3                            |
| BOD 3 DAYS 27oC  | 2.4                         | 2.2                                                            | 2.6                    | 2                              |
| COD              | 32                          | 16                                                             | 16                     | 20                             |
| SUSPENDED SOLIDS | 12                          | 10                                                             | 10                     | 12                             |
| OIL AND GREASE   | BDL                         | BDL                                                            | BDL                    | BDL                            |
| Chloride         | 86                          | 23                                                             | 35.5                   | 18                             |
| Sulphate         | 58                          | 8.1                                                            | 22                     | 4.6                            |
| TDS (mg/ltr)     | 440                         | 148                                                            | 230                    | 110                            |
| Iron             | 0.72                        | 0.64                                                           | 0.68                   | 0.83                           |
| Fluoride         | 0.23                        | 0.14                                                           | 0.18                   | 0.16                           |
| Conductivity     | 663                         | 217                                                            | 353                    | 159                            |
| Date: 01.10.2020 |                             |                                                                |                        |                                |
| Date/Parameters  | OPEN WELL<br>BOMBADOCHIWADI | Open well of<br>Ramkrushna<br>Kanyalkar at<br>Kanyalwadi, Redi | OPEN WELL<br>TIVREWADI | Well water<br>Hudawadi<br>Redi |
| pH               | 5.7                         | 6.3                                                            | 5.4                    | 6.4                            |
| BOD 3 DAYS 27oC  | 2.8                         | 2.4                                                            | 2.8                    | 2.8                            |
| COD              | 20                          | 16                                                             | 16                     | 20                             |
| SUSPENDED SOLIDS | 10                          | 8                                                              | 8                      | 10                             |
| OIL AND GREASE   | BDL                         | BDL                                                            | BDL                    | BDL                            |
| Chloride         | 29                          | 124                                                            | 26                     | 46                             |
| TDS (mg/ltr)     | 578                         | 580                                                            | 480                    | 488                            |
| Phosphate        | 0.11                        | 0.14                                                           | 0.08                   | 0.1                            |
| Zinc             | BDL                         | BDL                                                            | BDL                    | BDL                            |
| Iron             | 0.039                       | 0.048                                                          | 0.054                  | 0.044                          |
| Dissolved Oxygen | 6.7                         | 6.8                                                            | 6.8                    | 6.5                            |

### Analysis Results of Pit Water samples by MPC Board

| Date/Parameters  | 13.07.2011 | 15.12.2011 | 11.01.2012 | 02.06.2012 | 25.10.2013 | 03.06.2014 | 16.12.2015 | 15.10.2019 | 19.12.2019 | 08.01.2020 |
|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| pH               | 8.16       | 8.5        | 7.49       | 7.75       | 7.5        | 6.62       | 8.1        | 7.4        | 6.5        | 7.4        |
| BOD 3 DAYS 27oC  | 8.5        | 22         | 6.5        | 8.2        | 3.6        | 2.6        | 26         | 4          | 2.4        | 3.0        |
| COD              | 48         | 64         | 48         | 40         | 20         | 40         | 80         | 12         | 12         | 12.0       |
| Suspended solids | 22         | 16         | 23         | 18         | 26         | 18         | 15         | 10         | 11.0       | 10.0       |
| Oil & Grease     | BDL        | NA         | NA         | NA         | BDL        | BDL        | BDL        | -          | -          | -          |
| Chloride         | 15         | 25         | 580        | 400        | 192        | 354        | 192        | -          | -          | -          |
| sulphate         | 6.19       | 22.44      | 5.3        | 17         | 18         | 13.18      | 16         | -          | -          | -          |
| TDS (mg/ltr)     | 379        | 316        | 978        | 602        | 281        | 480        | 610        | 505        | 726        | 115.0      |
| Iron             | -          | -          | -          | -          | 1.08       | BDL        | -          | BDL        | 0.01       | BDL        |
| DO               | -          | -          | -          | -          | -          | 7.4        | -          | -          | -          | -          |
| Mercury          | -          | -          | -          | -          | -          | Nil        | -          | -          | -          | -          |
| Lead             | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Cadmium          | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Chromium+6       | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Total Chromium   | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Copper           | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Zinc             | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Nickel           | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Cyanide          | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Flouride         | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Phospahte        | -          | -          | -          | -          | -          | 1.18       | -          | -          | -          | -          |
| Manganese        | -          | -          | -          | -          | -          | BDL        | -          | -          | -          | -          |
| Nitrate          | -          | -          | -          | -          | -          | 1.37       | -          | -          | -          | -          |



राष्ट्रीय जल विज्ञान संस्थान  
(जल संसाधन नदी विकास और गंगा संरक्षण मंत्रालय भारत सरकार)  
**National Institute of Hydrology**  
(Ministry of Water Resources, RD & GR, Govt. of India)

दूरभाषा : 0831 - 2447714  
फैक्स : 0831 - 2447269  
ई-मेल : hrrcnih@gmail.com

कठोर शिला क्षेत्रिय केंद्र  
**Hard Rock Regional Centre**

मेन रोड, विश्वेश्वरय्या नगर, बेलगावि - ५९० ०१९ (कर्नाटक)  
Main Road, Visvesvaraya Nagar, Belagavi - 590 019 (Karnataka)

दिनांक Date : 03-03-2020

To

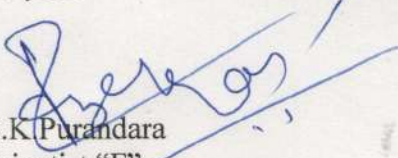
Mines Manager  
M/s.Gogte Minerals,  
Redi Iron Ore Mine,  
Village Redi, Taluk Vengurla,  
Sindhudurg Dist.  
Maharashtra.

Sub: Clarification on pH of the water sample drawn from open well.  
Ref: Your Letter Dated: 24.02.2020

Sir,

With reference to the above, low pH in the water sample drawn from open well could be attributed to following reasons:

The study area is covered by hard lateritic rocks. These are acidic in nature and exhibits low pH and the value depends mainly on the weathering status of the surrounding rock. Further, in highly weathered laterites there is a possibility of leaching of Ca and Mg ions due to which there will be considerable reduction in pH of water (less than 7). Investigations carried out in various parts of coastal zones of West Coast of India reported pH of groundwater less than 5 in shallow aquifers (Girish et.al 2006, Purandara et.al 2013). In addition to acidic nature of rocks decomposition of plants and dissolution of CO<sub>2</sub> also will play a significant role in lowering the pH. The study also indicated that, there is no impact of mining in the area as it is evident from the observation well as it is tapping from the shallow aquifer. The NIH is regularly monitoring the quality of the area as part of the Hydrogeological study. The study is in progress and final report will be submitted after completion of the entire observations which will be taken all over the year.

  
B.K. Purandara  
Scientist "F"



## ANNEXURE-10

## District Public Health Laboratory, Sindhudurg

E- mail – ID : [dphlsindhudurg@gmail.com](mailto:dphlsindhudurg@gmail.com)

Phone No : 02362 228977

REPORT ON CHEMICAL EXAMINATION OF TREATRD WATER WATER

Date of Collection :- ---- Date of Receipt :- 16 / 09 / 2020 Date of Examination :- 16/ 09 / 2020

( All the Analytical Results are in mg / Litre except pH, Turbidity )

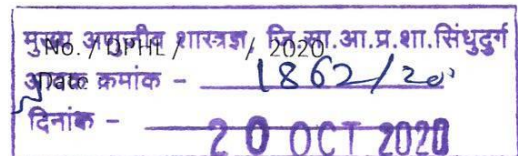
Onwards.

| Sr. No. | TEST PARAMETER                        | ( 1 )     | BIS Specification<br>10500 : 2012<br>Normal Values |                       |
|---------|---------------------------------------|-----------|----------------------------------------------------|-----------------------|
|         |                                       |           | Desirable<br>Limits                                | Permissible<br>Limits |
| 1       | Physical Appearance                   | Clear     | ---                                                | ---                   |
| 2       | Odour                                 | Agreeable | Agreeable                                          | Agreeable             |
| 3       | Turbidity ( as N.T.U. )               | 0.036     | 1.0                                                | 5.0                   |
| 4       | pH Value                              | 7.01      | 6.5 to 8.5                                         | No relaxation         |
| 5       | Chlorides ( as Cl )                   | 66.0      | 250                                                | 1000                  |
| 6       | Nitrates ( as $\text{NO}_3$ )         | 0.438     | 45                                                 | No relaxation         |
| 7       | Total Hardness ( as $\text{CaCO}_3$ ) | 126.0     | 200                                                | 600                   |
| 8       | Alkalinity ( as $\text{CaCO}_3$ )     | 26.0      | 200                                                | 600                   |
| 9       | Total Dissolved Solids                | 198.0     | 500                                                | 2000                  |
| 10      | Iron ( as Fe )                        | 0.0026    | 1.0                                                | No relaxation         |
| 11      | Fluoride ( as F )                     | 0.0758    | 1.0                                                | 1.5                   |

ND – Not detected.

This report is restricted only for the Sample/s is Submitted to this Laboratory.

This Sample/s is / are not Collected by this Laboratory.

**Remark :-** *Sample No. 1 is chemically fit for drinking purpose on the basis of analysed parameters only.**However, this water source can be used for drinking purpose only after proper treatment, disinfection & ascertaining it's bacteriological quality frequently or regularly.*HEALTH SERVICESFor warded With compliments To: -FOMENTO RESOURCES PVT LIMITED. At Post-Redi,  
Tal-Vegurla, Dist – Sindhudurg.

With reference to letter No:-

Dated :- 16/ 09 / 2020.

Fees Rs : --- 600/-

Receipt No.&amp; Date:-5066674 ;16/09/ 2020

Chief Bacteriologist,  
District Public Health Laboratory, Sindhudurg.  
Chief Bacteriologist  
District Public Health Laboratory  
Sindhudurg

## महाराष्ट्र राज्य सार्वजनिक आरोग्य सेवा

राज्य / प्रादेशिक / जिल्हा आरोग्य प्रयोगशाळा, सिंधुदुर्ग दूरध्वनी क्रमांक २२८१७७

## पाणी नमुन्याचा सूक्ष्मजीवीय अहवाल

प्रति, Fomento Resources Pvt Ltd Redi Dist Shindurपाठविणाऱ्यांचे पत्र क्रमांक व दिनांक :- — 16.9.2020प्रयोगशाळा संदर्भ क्रमांक :- 1705नमुना घेतल्याचा दिनांक :- 16.9.2020नमुना पोहचल्याचा दिनांक :- —//—परीक्षण सुरु केल्याचा दिनांक :- —//—

| अ.<br>क्र. | नमुन्याचे विवरण                | परीक्षणाचे निष्कर्ष                                      |                        |          | इतर अभिप्राय  |
|------------|--------------------------------|----------------------------------------------------------|------------------------|----------|---------------|
|            |                                | प्रती १०० मि.ली. नमुन्यातील संभाव्य सूक्ष्मजंतूची संख्या |                        |          |               |
|            |                                | कोलीफॉर्मस                                               | थर्मोटॉलरंट कोलीफॉर्मस | इ. कोलाय |               |
|            | Fomento Resources Pvt Ltd Redi | 0                                                        | —                      | —        | पिण्यास योग्य |

अभिप्राय : पिण्यास अयोग्य पाण्यावर योग्य प्रमाणात क्लोरिनची प्रक्रिया केल्यानंतर व सूक्ष्मजीवीय पुनर्तपासणीनंतर पिण्यास योग्य असल्याची खात्री झाल्यानंतरच ते पाणी पिण्यासाठी वापरता येईल.

अहवाल क्रमांक : 12/291/22.9.2020

अभिप्राय तारेने कळविल्याचा दिनांक :

मुख्य अणुजीव शास्त्रज्ञ, जि.सा.आ.प्र.शा.सिंधुदुर्ग  
 दिनांक :- 16.9.20  
 दिनांक :- 22 SEP 2020

प्रत सादर :

- (१) जिल्हा आरोग्य अधिकारी, जिल्हा परिषद, जिल्हा .....
- (२) शल्यचिकित्सक, जिल्हा रुग्णालय, जिल्हा .....
- (३) गटविकास अधिकारी, पंचायत समिती .....

अणुजीव शास्त्रज्ञ  
 मुख्य अणुजीव शास्त्रज्ञ,  
 जिल्हा सार्वजनिक आरोग्य  
 प्रयोगशाळा सिंधुदुर्ग





# MAHARASHTRA POLLUTION CONTROL BOARD

## महाराष्ट्र प्रदूषण नियंत्रण मंडळ

### REGIONAL LABORATORY, CHIPLUN

(An ISO: 9001:2015 & OHSAS: 18001:2007 Certified Laboratory)

To,  
The Sub-Regional Officer,  
M.P.C. Board, Ratnagiri.

Lab. Report No:-569

Date of Collection:-15/09/2020

Sample Code No:-SROR/JVS/Eff-85/20

Date of receipt:-17/09/2020

#### ANALYSIS REPORT

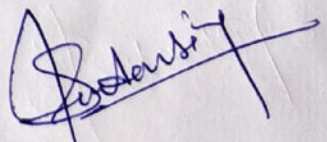
|                       |                        |
|-----------------------|------------------------|
| Type of industry      | Mine                   |
| Parameter             | Result                 |
| pH                    | 6.1                    |
| B.O.D. 3 days 27° C   | 2.0                    |
| C.O.D                 | 24.0                   |
| Suspended Solids      | 12.0                   |
| Oil & Grease          | BDL                    |
| Chloride              | 95.0                   |
| Sulphate              | 13.3                   |
| Total Dissolved Solid | 486.0                  |
| Iron                  | 0.76                   |
| Fluoride              | 0.29                   |
| Conductivity          | 690.0                  |
| Sample Collected by   | Indira T. Gaikwad, SRO |
| Seal No               | 100                    |

Note: - 1) All results are expressed in ppm except pH.

2) N.A. indicates Not Analysed.

3) BDL indicates Below Detectable Limit.

M/s. Gogate Minerals,  
Redi mix, Redi,  
Tal. Vengurla,  
Dist. Sindhudurg,  
(WTP)

  
(A.V. Mandavkar)  
Scientific Officer,  
Regional Laboratory, Chiplun



## महाराष्ट्र राज्य सार्वजनिक आरोग्य सेवा

संस्थ / प्रादेशिक / जिल्हा आरोग्य प्रयोगशाला, सिंधुदुर्ग ..... दूरध्वनी क्रमांक ०२३६२  
२२८९७७

## पाणी नमुन्याचा सूक्ष्मजीवीय अहवाल

प्रति, Maharashtra Pollution Control Board, Regional  
Office, Kolhapur.  
 पाठविणाऱ्यांचे पत्र क्रमांक व दिनांक :- २२.१०.२०२०  
 प्रयोगशाला संदर्भ क्रमांक :- २०८१-२०८३  
 नमुना घेतल्याचा दिनांक :- २१-१०-२०२०  
 नमुना पोहचल्याचा दिनांक :- २२-१०-२०२०  
 परीक्षण सुरु केल्याचा दिनांक :- २२-१०-२०२०

| अ.<br>क्र. | नमुन्याचे विवरण                                             | परीक्षणाचे निष्कर्ष                                      |                       |          | इतर अभिप्राय  |
|------------|-------------------------------------------------------------|----------------------------------------------------------|-----------------------|----------|---------------|
|            |                                                             | प्रती १०० मि.ली. नमुन्यातील संभाव्य सूक्ष्मजंतूची संख्या |                       |          |               |
|            |                                                             | कोलीफॉर्म                                                | थर्मोटॉलरंट कोलीफॉर्म | इ. कोलाय |               |
| ०१.        | Bho Devi mauli water treatment plant (WTP) at Redi village. | ०                                                        | —                     | —        | पिंपळान येथे. |
| ०२.        | Treated water supply at Redi village.                       | ०                                                        | —                     | —        |               |
| ०३.        | Open well water at Mangesh Kamat, Kanyul village.           | ०                                                        | —                     | —        |               |

अभिप्राय : पिण्यास अयोग्य पाण्यावर योग्य प्रमाणात क्लोरिनची प्रक्रिया केल्यानंतर व सूक्ष्मजीवीय पुनर्तपासणीनंतर पिण्यास योग्य असल्याची खात्री झाल्यानंतरच ते पाणी पिण्यासाठी वापरता येईल.

अहवाल क्रमांक : १२/३६९/२७/१०/२०२०

मुख्य अणुजीव शास्त्रज्ञ, जि.सा.आ.प्र.शा.सिंधुदुर्ग  
 आयक क्रमांक - १९१८/२०  
 दिनांक २९.१०.२०२०

अभिप्राय त्मने कळविल्याचा दिनांक \* This report is restricted only to the samples submitted to this laboratory

प्रत सादर :

\* This sample is/are not collected by this laboratory.

- (१) जिल्हा आरोग्य अधिकारी, जिल्हा परिषद, जिल्हा
- (२) शल्यचिकित्सक, जिल्हा रुग्णालय, जिल्हा
- (३) गटविकास अधिकारी, पंचायत समिती

मुख्य अणुजीव शास्त्रज्ञ  
 जिल्हा सार्वजनिक आरोग्य  
 महाराष्ट्र सिंधुदुर्ग

State / Regional / District / Public Health Laboratory Sindhudurg

E-mail-ID : .....

Phone No. 02362228977

## REPORT ON CHEMICAL EXAMINATION OF WATER FOR DRINKING PURPOSES

Date of Collection :— 21.10.20 Date of Receipt :— 22.10.20 Date of Examination :— 22.10.20

(All the Analytical Results are in mg./Litre except pH, Turbidity)

onwards

| Sr. No. | TEST PARAMETER                         | (1)<br><u>Treated water<br/>WTP Redi<br/>Village.</u> | (2)<br><u>Treated<br/>water<br/>supply to<br/>Redi village</u> | (3)<br><u>Well water<br/>mangesh<br/>Kamat Kantal<br/>village</u> | BIS Specification<br>10500 : 2012<br>Normal Values |                       |
|---------|----------------------------------------|-------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------|-----------------------|
|         |                                        |                                                       |                                                                |                                                                   | Desirable<br>Limits                                | Permissible<br>Limits |
| 1.      | Physical Appearance                    | <u>Clear</u>                                          | <u>clear</u>                                                   | <u>clear</u>                                                      | —                                                  | —                     |
| 2.      | Odour                                  | <u>Agreeable</u>                                      | <u>Agreeable</u>                                               | <u>Agreeable</u>                                                  | Agreeable                                          | Agreeable             |
| 3.      | Turbidity (as N.T.U.)                  | <u>0.00</u>                                           | <u>0.00</u>                                                    | <u>0.00</u>                                                       | 1.0                                                | 5.0                   |
| 4.      | pH Value                               | <u>7.72</u>                                           | <u>7.84</u>                                                    | <u>7.16</u>                                                       | 6.5 to 8.5                                         | No relaxation         |
| 5.      | Chlorides (as Cl)                      | <u>56.0</u>                                           | <u>60.0</u>                                                    | <u>26.0</u>                                                       | 250                                                | 1000                  |
| 6.      | Nitrates (as NO <sub>3</sub> )         | <u>0.1869</u>                                         | <u>0.1825</u>                                                  | <u>4.9190</u>                                                     | 45                                                 | No relaxation         |
| 7.      | Total Hardness (as CaCO <sub>3</sub> ) | <u>30.0</u>                                           | <u>28.0</u>                                                    | <u>24.0</u>                                                       | 200                                                | 600                   |
| 8.      | Alkalinity (as CaCO <sub>3</sub> )     | <u>26.0</u>                                           | <u>30.0</u>                                                    | <u>20.0</u>                                                       | 200                                                | 600                   |
| 9.      | Total Dissolved Solids                 | <u>137.0</u>                                          | <u>136.0</u>                                                   | <u>57.8</u>                                                       | 500                                                | 2000                  |
| 10.     | Iron (as Fe)                           | <u>N.D.</u>                                           | <u>N.D.</u>                                                    | <u>N.D.</u>                                                       | <u>0.31.0</u>                                      | No relaxation         |
| 11.     | Fluoride (as F)                        | <u>0.1835</u>                                         | <u>0.1950</u>                                                  | <u>0.1409</u>                                                     | 1.0                                                | 1.5                   |
| 12.     | Other Tests (if any)                   | <u>—</u>                                              | <u>—</u>                                                       | <u>—</u>                                                          |                                                    |                       |
| 13.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 14.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 15.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 16.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 17.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 18.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 19.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |
| 20.     |                                        |                                                       |                                                                |                                                                   |                                                    |                       |

- This report is restricted only for the Sample/s is Submitted to this Laboratory.
- This Sample/s is / are not Collected by this Laboratory.

[P.T.O.]

## REMARKS

A) Sample No. (s) (1, 2, 7B) is/are potable / chemically fit for drinking purpose on the basis of analysed parameters only.

However, this / these water source/s can be used for drinking purpose only after proper treatment, disinfection and ascertaining it's bacteriological quality frequently or regularly.

B) Sample No. (s) \_\_\_\_\_ Contains \_\_\_\_\_

Chief Bacteriologist  
District Public Health Laboratory  
Sindhudurg

However, if there is no any other alternate source available nearby then this / these water Source/s can be used for drinking purpose only after proper treatment, disinfection and ascertaining it's bacteriological quality frequently or regularly.

C) Sample No. (s) \_\_\_\_\_ Contains \_\_\_\_\_

Hence, this / these water Source/s is / are chemically non-potable / unfit for drinking purpose on the basis of analysed parameters only.

HEALTH SERVICES

मुख्य अणुजीव शास्त्रज्ञ, जि. सा. आ. प्र. शा. सिंधुदुर्ग  
आवक क्रमांक - 2013/20  
दिनांक - 18 NOV 2020  
Date :-

Forwarded With Compliments To : Ravindra Andhale, Regional Officer,

Maharashtra Pollution Control Board Kolhapur, Dist. Kolhapur.

With reference to letter No. : \_\_\_\_\_ Dated 22.10.20

Fees Rs. : 1800/- 5066704.

Receipt No. and Date :



b/c  
**GOGTE MINERALS**

146, TILAKWADI, BELGAUM - 590 006. (INDIA)

Phone: 2468917 (3 Lines) 2424696  
Telegram: MINERALS  
FAX: 91 - 831- 2426487  
Email: magogte@birvsnl.net.in

Date: 13/7/2018

To  
The Dy. Controller of Mines  
Indian Bureau of Mines,  
Opp. R.T.O.'s Office,  
P.O. Fatorda,  
MARGOA - GOA.

**SUB :** Violation of provisions of Mineral Conservation & Development Rules, 2017 (MCDR, 2017) in respect of our Redi Iron Ore Mine (Block-I), Lessee- M/s Gogte Minerals, over an area of 94.7060 Ha, in Sindhudurg District, Maharashtra State.

**Your Ref:** Your letter No. MAH/SDG/Fe-6/GOA dated 31/05/2018.

Dear Sir,

We are in receipt of your letter referred above and we would like to submit as under.

| Rule No.       | Nature of Violation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rule No. 11(1) | <p><i>Mining operations have not carried out in accordance with the Modification of Mining Plan (MMP) approved dated:-19.01.2016 to the extent indicated below:-</i></p> <p><u>Violation:</u></p> <p><i>(i) Exploration approved for the year 2016-17 and 2017-18, to the extent of 10 Boreholes (total meterage of 750 m); however against which only 04 Boreholes (total meterage of 291 m) reported carried out.</i></p> <p><u>Our Reply:</u></p> <p>we had proposed 10 boreholes of a total depth of 750 mts during the year 2016-17 and 2017-18 and we have completed drilling 4 boreholes of a total depth of 291 meters ( 39%) during the same period.</p> <p>The areas proposed are virgin areas where we have to obtain the surface rights/ Consents from the third party. Even though negotiations were started long back to obtain the surface rights, the entire surface rights where remaining boreholes are proposed could not be acquired.</p> <p>And also since the area proposed for remaining boreholes have thick vegetation with fruit bearing trees and seasonal crops, preparations for borehole drilling involves substantial cutting of the trees which leads to conflict with local community and can not be carried out without obtaining permission for tree-felling from concerned department.</p> |

13/07/18  
Received  
भारतीय खान ब्यूरो  
Indian Bureau of Mines  
फतोडा, बडगांव-गोवा  
MARGOA, MARGAO-GO

Mumbai Office: Empress Court, 126, Churchgate Reclamation, Mumbai - 400 020. Phone: 22821086, 22820827  
Redi Address: At&Post REDI, Dist.Sindhudurg.Maharashtra-416517. Phone:(02366)227701 Teli Fax (02366) 226036

d) We are in the process of acquiring the surface rights through discussions in order to obtain the surface rights amicably.

e) We assure you that immediately after acquiring the surface rights we will undertake the exploration in this area pursuant to permission for tree felling.

**Violation:**

***(ii) Back-filling approved in Patni Pit has not been carried out. Instead, waste dumping continued at the East of Pit-203 at S.No. 50(Old 184); by increasing its height more than approved by about 8m.(proposed dump level-100m, attained dump level-about 108m).***

**Our Reply:**

In the approved Modified Mining Plan, we have proposed an area of 4.9 Ha for Back-filling in Patni Pit in the year 2016-17 and 2017-18. Against the above proposals, 4.768 Ha has area been already back filled during the proposed period. Even otherwise difference in proposed backfilling and back filling actually carried out is not substantial.

We have initiated the process of height reduction of the waste dump at the East Pit-203 in S.No.50(old 184) by removing the excess material. Heavy rains are hampering the work of dump height reduction. We will complete the dump height reduction work by 31<sup>st</sup> Oct 2018 and bring it to the height proposed in the Approved Mining Plan. Photo depicting the excavator engaged in dump height reduction work is enclosed as Annexure – I.

We would also like to bring to your kind notice that we have also engaged National Institute of Rock Mechanics to conduct study on slope and dump stability.

**Violation:**

***(iii) Waste dumping at Pit No.235 approved for year 2015-16 only upto 18m height in stages with two no. of terraces. Whereas, it was observed that this dump has been made of about 25m height without any stages/terracing and further waste dumping has been continuing over the same. This dump has also got extended in to Safety Zone/barrier of 7.5m along the ML boundary towards boundary pillars BP-33 to BP-35 without such approval.***

**Our Reply:**

Proposal for waste dumping at pit No.235 was made for the year 2015-16 the same was carried out in the year 2017-18 and in the months of April and May 2018. The delay in execution in dumping is due to dispute raised by the surface right holders which was settled only in the year 2017-18.

Terracing and height reduction of the dump is already initiated prior to monsoon. Due to stoppage of all Mining operations in the mine during monsoon, the terracing and height reduction will be completed immediately after the monsoon. Photo showing the dump height reduction activities is annexed as Annexure - I

Proper Safety Zone/barrier of 7.5m along the ML boundary towards boundary pillars BP-33 to BP-35 maintained

**Violation:**

*(iv) To check wash-off from dump at Pit No.235, retention wall, garland drain, embankment etc. as approved along the periphery of the dump has not been constructed.*

**Our Reply:**

We have constructed garland drains and embankment etc. to check wash off from the dump at Pit No.235 and same is working satisfactorily and there is no wash off from the dump at Pit No.235. Photo depicting embankment and garland drain annexed as Annexure - II

**Violation:**

*(v) Substantial amount of mineral/ROM observed stacked in the northern side of the main pit-203 at non-approved area.*

**Our Reply:**

The Lumpy ore was stacked temporarily for rescreening purpose within the Lease area and which will be shifted to jetty/ stack area immediately after monsoon.

Due to heavy rains, entire production is stopped and mining operations are temporarily halted. In view of the above reason, even though we have initiated the rectification of violations regarding dump height, it could not be completed. We will rectify it immediately after monsoon and request you to allow us to complete it by 31<sup>st</sup> October 2018.

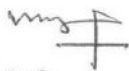
We therefore respectfully submit that requisite remedial action under Rule 11(2) of MCDR-2017 has already been undertaken.

We hope you will find the above reply in order.

Thanking You.

Yours Faithfully,

FOR GOGTE MINERALS



AGENT



**GOGTE MINERALS**

146, TILAKWADI, BELGAUM-590 006. (INDIA).

Phone : 468917 (3 Lines) 424696  
 Telegram : MINERALS  
 Fax : 91-831-426487  
 Email : magogte@blr.vsnl.net.in

15.06.2011

To,  
 The Director (IA),  
 Ministry of Environment and Forest,  
 Paryavaran Bhavan, CGO complex,  
 New Delhi 110 003

Subject: Submission of half yearly 'Compliance Report' for our Redi Ore mine at village Redi, Taluka Vengurla, District Sindhudurg, State Maharashtra

Reference: Environmental Clearance issued by Ministry of Environment & Forest, New Delhi vide file no. J-11015/1045/2007-IA.II(M) dated 22.04.2010

Dear sir,

With reference to the above, we are submitting herewith, half yearly 'Compliance Report' for our Redi Iron ore mine located at village Redi, Taluka Vengurla, District Sindhudurg, State Maharashtra.

Hope you find this in order.

Thanking you.

Yours truly,



Hitesh Kularkar  
 (Mines Manager)

Encl: as mentioned above.

Cc:

1. The Additional Director (S), Ministry of Environment & Forest, Regional office, "Kendriya Paryavaran Bhavan", Link Road no.3, Ravi Shankar Nagar, Bhopal 462 016 (MP).
2. The Member Secretary, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-office complex, East Arjun Nagar, New Delhi 110 032.
3. The Member Secretary, Maharashtra Pollution Control Board, Kalpataru Point, 2<sup>nd</sup> 3<sup>rd</sup> & 4<sup>th</sup> floor, Opp. Cineplanet, Near Sion Circle, Sion(E), Mumbai 400 022.

## LAND – USE PATTERN OF NEARBY VILLAGES

### INTRODUCTION

Gogte Minerals a leading name in mining industry operate various mines in Maharashtra state. The organisation has a proven record for safely handling the mining operations and committed for the safety, health & environmental issues of the mining operations. The lease is granted as per amalgamation order no. MMN-1005/CR-955/Ind-9 issued by Department of Industrial, energy and Labour, Govt. of Maharashtra and the lease is valid upto 20<sup>th</sup> January 2016.

Mine is in village: Redi, Taluka: Vengurla, District: Sindhudurg, State: Maharashtra in an area of 94.7060 Ha and produce 0.368 MTPA of Iron ore. The mining was active up to nineties and later stopped due to poor market conditions. All the area in the lease is a private land.

### BASE LINE STATUS

Land is the most important natural resources on which human activities are based. Soil is formed due to slow process of weathering. The normal mineral composition of plants is altered by alteration in soil conditions. Existence of flora and fauna depends on the quality of soil in the area. Soil samples representing different land use was collected and studied. The details of locations of samples collected are as,

Table no.1: Locations of soil samples with distance and direction

| Sr. No. | Code | Location                             | Distance (km) | Direction |
|---------|------|--------------------------------------|---------------|-----------|
| 1       | S1   | Top soil                             | ==            | ==        |
| 2       | S2   | Old dump soil                        | ==            | ==        |
| 3       | S3   | Redi village agricultural soil       | 2.0           | NWW       |
| 4       | S4   | Shiroda village agricultural soil    | 4.2           | NE        |
| 5       | S5   | Terekhol village agricultural soil   | 2.3           | SSE       |
| 6       | S6   | Kanyalvadi village agricultural soil | 0.66          | S         |

The analysis of soil samples collected shows that, Water holding capacity – 35 to 47% and the quality of soil is reasonably good and is having silty texture. The detail analysis of soil samples is as,

Table no.2: Analysis report of soil samples

| Sr. No. | Particulars                           | Code  |      |      |      |      |      |
|---------|---------------------------------------|-------|------|------|------|------|------|
|         |                                       | S1    | S2   | S3   | S4   | S5   | S6   |
| 1       | pH                                    | 7.7   | 7.41 | 7.89 | 6.96 | 7.20 | 7.30 |
| 2       | EC (μ mhos/cm)                        | 0.77  | 0.72 | 0.78 | 0.77 | 0.69 | 0.77 |
| 3       | Organic Carbon (%)                    | 0.92  | 0.81 | 0.79 | 0.73 | 0.64 | 0.82 |
| 4       | Nitrogen as N (Kg/Ha)                 | 76.5  | 68   | 62   | 59   | 39   | 57   |
| 5       | Phosphorous as P (Kg/Ha)              | 17.5  | 19.4 | 16.8 | 16.5 | 11.0 | 14.0 |
| 6       | Potassium as K <sub>2</sub> O (Kg/Ha) | 115.0 | 89.0 | 67.0 | 59.0 | 42.0 | 47.5 |

|    |                              |            |            |            |            |            |            |
|----|------------------------------|------------|------------|------------|------------|------------|------------|
| 7  | Sulphate SO <sub>4</sub> (%) | 0.05       | 0.15       | 0.085      | 0.073      | 0.01       | 0.05       |
| 8  | Water holding capacity (%)   | 47         | 45         | 40         | 35.5       | 38         | 40         |
| 9  | Sodium (meq/100gm)           | 0.95       | 0.84       | 0.87       | 0.92       | 0.79       | 0.67       |
| 10 | Chloride (%)                 | 0          | 0          | 0          | 0          | 0          | 0          |
| 11 | Iron as Fe (%)               | 28         | 31         | 33         | 29         | 31         | 37         |
| 12 | Texture Class                | Silty clay | Loamy sand | Silty clay | Silty clay | Silty clay | Silty clay |

### LAND USE PATTERN

The total lease area is 94.706Ha which is totally a private land. To study the impact on land use due to mining activity an area of 5 km radius along the mining lease was taken in consideration. In 5 km there are about 19 villages for which the study is conducted. The study portion is divided in two parts

- a. Core Zone
- b. Buffer Zone

### CORE ZONE

The core zone comprises of mining lease area. The total area of the lease is a private land (94.706Ha). The area comprises of flat top plateau covered by 0.5 – m thickness Ferruginous / Aluminous rich Laterite underlying Bauxite formation having thickness of 6 – 7 m.

### BUFFER ZONE

Land use of 28 villages is studied around the mine area. There is only one mine in the buffer zone of 10 km radius occupying 218.285 Ha. The details of the village land use is as,

Table no.3: Village wise land use pattern

| Sr. No. | Village  | Distance from mine lease (km) | Forest (Ha) | Unirrigated (Ha) | Culturable waste (Including gauchar & Groves) (Ha) | Area not available for cultivation (Ha) |
|---------|----------|-------------------------------|-------------|------------------|----------------------------------------------------|-----------------------------------------|
| 1       | Redi     | 0.5                           | ==          | 278.8            | 4.2                                                | 79.7                                    |
| 2       | Tiroda   | 1.2                           | ==          | 126.4            | 94.8                                               | 49.5                                    |
| 3       | Talawane | 1.6                           | 7.31        | 153.6            | 17.5                                               | 46.3                                    |
| 4       | Nanos    | 1.6                           | ==          | ==               | 386.0                                              | 131.0                                   |
| 5       | Aronda   | 1.6                           | ==          | 78.7             | 157.3                                              | 91.5                                    |
| 6       | Shiroda  | 1.7                           | ==          | 115.2            | 9.3                                                | 34.0                                    |



|    |             |      |       |       |       |       |
|----|-------------|------|-------|-------|-------|-------|
| 7  | Ajgaon      | 1.75 | ==    | 61.2  | 242.5 | 49.9  |
| 8  | Asoli       | 2.0  | 13.77 | 295.0 | 4.1   | 125.1 |
| 9  | Sonsure     | 2.5  | 10.18 | ==    | ==    | ==    |
| 10 | Sakhelekhoh | 2.5  | ==    | 61.2  | 242.5 | 49.9  |
| 11 | Tank        | 3.0  | 25.38 | 71.5  | 155.8 | 86.2  |
| 12 | Sagartirth  | 3.0  | 9.35  | 128.0 | 2.2   | 80.9  |
| 13 | Temb        | 3.5  | ==    | ==    | 123.0 | 57.0  |
| 14 | Arawall     | 3.6  | ==    | 66.6  | 2.8   | 74.9  |
| 15 | Bandh       | 3.7  | ==    | 215.8 | 137.6 | 0.8   |
| 16 | Parabgoan   | 3.9  | ==    | 153.1 | 70.0  | 4.0   |
| 17 | Bagayat     | 4.0  | ==    | 98.7  | 198.0 | 103.0 |
| 18 | Velagar     | 4.0  | ==    | 50.5  | 171.2 | 82.6  |
| 19 | Huda        | 4.3  | ==    | 211.7 | 5.8   | 103.5 |

#### IMPACT DUE TO MINING

There is no forest in the core zone (Mining Lease) so forestry is not affected. The mining activity is localized to about 27.58 Ha within the core zone. Transportation activity will also contribute adversely. Seasonal nallah flow at the southern end of the lease area, there is a possibility of silt entering the nallah and affecting the nearby soil.

#### MITIGATION MEASURES

There is no forest land involved in the mining lease area and hence it not be affected. Since mining activity is localized to 27.58 Ha in the core zone there will be minimum impact and this will be further minimized by backfilling from 3<sup>rd</sup> year and afforestation will also be carried out. The transportation trucks will be covered with tarpaulin and will be using asphalted road so there will not be any significant impact in the buffer zone. The flow of silt to the nearby seasonal nallah will be arrested by constructing filter walls like gully checks, check dams, settling ponds & retaining walls. The top cover is laterite and does not have top soil.

#### BUDGETARY ALLOCATION

Rehabilitation and reclamation of mined out area will be carried out from 3<sup>rd</sup> year onwards.

Table no.4: Proposed budget for land environment management

| Sr. No. | Activity                                   | Initial cost at 0.3 MTPA production (Rs. Lakhs) |
|---------|--------------------------------------------|-------------------------------------------------|
| 1.      | Reclamation & Rehabilitation (Backfilling) | 2.50                                            |
|         | <b>Total</b>                               | <b>2.50</b>                                     |

**CONCLUSION**

Following measures will be adopted for protection of land environment,

1. Water spraying on roads and dumps.
2. Water spraying along entire road.
3. Asphaltting of road passing through the village where the transportation of ore is done.
4. Construction of check dams, gully checks and toe / retaining walls.
5. Keeping minimum area under mining and dumping during life of the mining.
6. All the environmental precautionary measures will be taken within core zone and buffer zone areas.

Tentative post mining land use

| Sr. no. | Particulars                                                                 | Area (Ha)     |
|---------|-----------------------------------------------------------------------------|---------------|
| 1       | Afforestation of mined out area                                             | 27.58         |
| 2       | Infrastructure, Roads, Safety zone area to be afforested / agricultural use | 9.80          |
| 3       | Unused area to be afforested / agriculture                                  | 57.326        |
|         | <b>Total</b>                                                                | <b>94.706</b> |

Plantation will be carried out as per the guidelines of Central Pollution Control Board (CPCB). Local species like Mango, Cashew, Coconut, Jack fruit will be used. Bio-diesel plants like Jatropa, leguminous plants, herbs and shrubs will also be planted.

Along with this more number of saplings will be planted in core zone and buffer zone.



## MIGUEL BRAGANZA

*M. Sc (Agri) in Horticulture, U.A.S.*

*Former Agriculture Officer- Horticulture [Head Office], Zonal Agriculture Officer-  
Tiswadi and Farm Superintendent, Ela Farm, Directorate of Agriculture, Govt. of Goa  
Ex-Assistant Professor of Horticulture, Don Bosco College of Agriculture, Sulcorna.*

**Horticultural Consultant**

5/4A, Xettiavaddo, Opposite Z. A. O. Mapusa – Goa.

Email: braganza.miguel@gmail.com

9822982676

### REPORT INSPECTION OF LAND AND PLANTATIONS IN VILLAGE REDI IN SINDHUDURG, MAHARASHTRA

The undersigned, **Miguel Braganza**, M.Sc.(Agri) in Horticulture and experienced valuer of fruit trees in Goa, has inspected on Tuesday **23 January, 2018**, the coconut trees in Bomdojichiwadi and Mhartale wards of Redi village in Sindhudurg District, Maharashtra State. The representatives of M/s Gogte Minerals, Redi Mine, indicated the fields and coconut plantations from the owners of which the company had received representations either directly or through the village panchayat claiming that the coconut plants were dying due to lack of water. The copies of Survey Plans of the said plots were provided to me by the officials of the company. The coconut trees in the areas near Redi Port, Sukalbhat and towards the Shivaji Fort, outside the areas from where representations were received, were also observed for the purpose of comparison

Near the Mauli temple in Redi village, the Mauli pit where mining has been abandoned for almost a decade was full of water and the pumping operation was in progress at the time of inspection. The discharge points from the pipeline into the natural courses of rain water showed flow of water. So did the discharge point by the roadside in front of the Mauli temple gate. The continuity of flow was observed at the Bomdojichi Wadi in the paddy fields that showed moisture up to the soil surface in Survey numbers 5,6,7, 8, 10, 11, 13,13, 14, 15, 19, 20 & 21. Water drains into the creek of the Arabian Sea beyond Survey Nos.11, 14 and 19 towards the fort. There is no issue of lack of water here. The water table is too high for coconut trees and the height of the mounds and bunds is inadequate. It has been well established by the Central Plantation Crops Research Institute (CPCRI) Kasargod of the Indian Council for Agricultural Research (ICAR), Pusa-Delhi, since 1970s that coconut root system is adversely affected by high water table and this forms a part of the recommendations for coconut cultivation in India ever since.

Chilies and vegetables are grown in small patches with temporary fencing made of bamboo, sticks and coconut fronds as per tradition practices in the Konkan region across states. There is one patch of coconut trees planted on mounds of soil about half a metre above the natural ground level in the fields. These palms are about ten years old but not bearing. In the

*Miguel Braganza*



adjoining plantation the trees are severely affected by Rhinoceros beetle (*Oryctes rhinoceros*) attack with the typical fan-shaped cuts or breakage of the frond tips on the palms

In Mhartale Wadi Survey Numbers 17, 20, 21, 22 there is water in a shallow rain water drain about half meter below ground level and the nullah that flows into the creek beyond survey No.21. There is moisture up to the surface of the soil on the day of inspection. The trees are planted on low level bunds and there is not enough height above the water table for root growth. Two young palms of about ten years age are dead due to Red Palm Weevil (*Rhyncophorus ferrugineus*) attack. Sporadic damage due to Rhinoceros beetle (*Oryctes nasicornis*) is also seen.

On the other side of the tar road, in Survey Nos 66, 67, 68, 69, 70, the moisture is sub-surface at about 15 cm depth in the central rice field that is fallow and grazed on by unattended cattle. The moisture is on the surface nearer to the strip planted with coconut trees, most of which are bearing between 6 to 25 nuts per bunch.

One of the villagers who stated his name was Devidas Gopal Redkar, confirmed the undersigned assessment that these fields were in fact two-crop rice field where the monsoon or kharif and the winter or rabi rice crops were grown and some followed with pulses or chilies and vegetables as is still being practiced in small patches. The coconut trees plantations have been expanded into the paddy fields over the last few decades. Cattle left loose by the owners instead of stall-feeding during crop season is a major issue why rice is not cultivated and planting coconut is resorted to because after initial growth the coconut is beyond the reach of the cattle. However, the earthwork to create bunds of sufficient height and the network of drainage lines is not in place. This is affecting the productivity and life of the coconuts. Shortage of water is not the cause of death of the coconut palm. Their mortality is linked to the Rhinoceros Beetle, the Red Palm Weevil and fungal infections like bud rot and *Ganoderma lucidum* wilt.

The area near the Brahman temple in Survey Nos 61 to 65 and adjoining areas the water is at the surface as on the day of the inspection. This is a rice field that has been left fallow for many years. Cattle could be seen grazing on the grass in these fields.

Coconut trees at higher elevations and without any source of irrigation near the Redi Port, the Weigh Bridge and other areas outside the areas provided with irrigation water by ILPL

In view of the above, it is my considered opinion that the death of coconut trees in Bombojichiwadi and Mhartale wards of Redi village in Sindhudurg District, Maharashtra State, from where the representations have been received by the company have not been affected due to scarcity of water in the current year or preceding years. The biotic causes of the death of the coconut trees need to be investigated by the appropriate authorities and corrective measures recommended.



**Miguel Braganza**

M. Sc (Agri) in Horticulture

29 January, 2018