KORP RESOURCES PVT. LTD.

ONKAR MINES

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Phone : 06625236305
CIN : U51500WB1994PTC063926

Ref no- KRPL/ MoEF/418/24. Date 04.05 2023

To
The Regional Officer,
Ministry of Envirnoment and Forest,
Eastern Regional Office,
Chandrasekharapur, Bhubaneswar, 751023.

Sub:- Half yearly compliance on status of environmental clearance conditions of M/s Korp Resources Pvt Ltd. For the period from Oct 2022 to March 2023.

Sir,

In compliance to the conditions stipulated in grant of environmental Clearance 9MoEF letter no- J-11015/1008/2007-IA II(M) dated 4.6.2009. Tantra Iron Ore Mine of M/s Korp Resources Pvt Ltd at Tensa Dist Sundergarh Odisha is submitting the Half yearly compliance on status of environmental clearance conditions for the period from Oct 2022 to March 2023. We have uploaded the compliance in website and also submitted in mail. We are enclosing the monitoring report and photographs and documents in support of compliances attended during the period.

Submitted for kind information.

Thanking You.

Yours Faithfully.
For Tantra Iron Ore Mines,
M/s Korp Resources Pvt Ltd

GENERAL MANAGER
Tantara Iron Ore Mines
Korp Resources Pvt. Ltd.
Tensa, Odisha-770047

General Manager

Encl- 1. Status of compliance report.
2. Monitoring report for 6 months Oct 2022 to March 2023

HALF YEARLY COMPLIANCE STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS OF M/S. KORP RESOURCES PRIVATE LIMITED FOR THE PERIOD FROM OCTOBER 2022 TO MARCH 2023.

(Ref: MoEF Letter No. J-11015/1008/2007-IA.II (M) dated 04.06.2009)

<table>
<tr><th colspan="3">Specific Conditions:</th></tr>
<tr><th>Sl. No.</th><th>Description</th><th>Compliance Status</th></tr>
<tr><td>1</td><td>Environmental clearance is accorded for production capacity of 1,20,000TPA (0.12miliion TPA) of iron ore only</td><td>EC was obtained on 04.06.2009 Letter No-(J-11015/1008/2007-IA,II(M) and production thereafter are as follows:
<table><tr><td>2009-10</td><td>0.00</td><td>2016-17</td><td>119300</td></tr><tr><td>2010-11</td><td>116557</td><td>2017-18</td><td>106200</td></tr><tr><td>2011-12</td><td>16800</td><td>2018-19</td><td>118700</td></tr><tr><td>2012-13</td><td>78230</td><td>2019-20</td><td>117500</td></tr><tr><td>2013-14</td><td>119800</td><td>2020-21</td><td>119100</td></tr><tr><td>2014-15</td><td>114000</td><td>2021-22</td><td>117200</td></tr><tr><td>2015-16</td><td>115600</td><td>2022-23</td><td>119700</td></tr></table>After grant of EC production done within granted limit.</td></tr>
<tr><td>ii.</td><td>All the conditions stipulated by the State Pollution Control Board, Odisha in their Consent to Establish shall be effectively implemented.</td><td>The consent to establish has been obtained from OSPCB vide order No-22542 Dtd-4.12.13. As without Ec ,CTE cannot be implemented, appl for renewal of CTE will be done after grant of EC.</td></tr>
<tr><td>iii.</td><td>Necessary Forestry clearance under the Forest (Conservation) Act, 1980 for an area of 72.419ha forest land shall be obtained before starting mining operation in that area. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance. The environmental clearance is subject to grant of forestry clearance.</td><td>Forest clearance as per FC act has been granted vide letter.
No-F N0108/2000 FC Dated-14.6.2010</td></tr>
<tr><td>iv.</td><td>The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be, carried out.</td><td>As the water table is 192 Mtr below the deepest mine working to be reached at conceptual, stage, so there will be no intersection / effect of mine working on ground water table.
All operations of mines including mine excavation is restricted to above ground water table.</td></tr>
<tr><td>v.</td><td>The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken for protection of Samij Nallah and also while diverting any seasonal channels originating from the mine lease, if any, during the course of mining operation.</td><td>According to the hydrological study done there is no perennial natural water course or resource in the ML area. Adequate steps taken by making check dams to prevent flow of sediment downstream. 3 check dams in each seasonal water course is done. Settling tanks of adequate size is made along the water course.</td></tr>
</table>

vi.	The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	There is very little or no generation of top soil because the mine is mostly progressing depth words and there is very little lateral extension. As per mining scheme there is no generation of top soil. During this period. In course of mining any soft material suitable for use for plantation is recovered from joints & fissures is used for plantation simultaneously. Earlier recovered Top soil is kept preserved and used for nursery purpose. The photograph of Top soil stack enclosed)
vii.	The over burden (OB) generated during the mining operation shall be **stacked in the earmarked area** only and it should not be kept active for a long period of time and its **phase-wise stabilization** shall be carried out. There shall be one external over burden dump, the maximum height of the dump shall not exceed 10 m and the over all slope of the dump shall be maintained to 27°. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas use of geo-textiles shall be undertaken for stabilization of the dump. **Backfilling shall start from the year 2018 onwards and shall be' completed by 2023.**The backfilled area shall be afforested. Monitoring and management of rehabilitated areas should continue until the vegetation, becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	-OB generated is stacked in the area specified for dumping as per approved mining plan. -Bottom horizon of the Dump is being stabilized phase wise by plantation in foothill zone of the dump. Height of each step of the dump is kept 6-8 Mtr with proper width, so the average angle of slope is about 23^0 to 24^0 . -As there is one dump and it is active the foot region is stabilized by plantation with local species like Simarua, Chakunda the best survival species of the region. As the dump is active no part of the dump is matured for fixing of Geotextile. Terracing of the dump is made to avoid erosion by surface runoff. • Though there was provision for back filling earlier, due to occurrence of ore proved by subsequent prospecting in present scheme approved upto March 2023 there is no provision for back filling.
viii.	**Catch drains and siltation ponds** of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of water and flow of sediments directly into the Karo River, the Kuradih River, the Samij Nallah and other water bodies. The water so collected shall be **utilized for watering** the mine area, roads, green belt development etc. The drains shall be regularly de-silted, particularly after the monsoon, and maintained properly. **Garland drains, settling tanks and check dams of appropriate size, gradient and length** shall be constructed both around the mine pit and the over burden dump to prevent run off of water and flow of sediments directly into the Karo River, the Kuradih River, the Samij Nallah and other water bodies and sump capacity	• The garland drains have been. Properly sloped, deepened and widened. • Pits of suitable size has been developed along to garland drains and in corners. • Hume pipes have been provided in road crossing. • Water is channelized / discharged through settling tank to retain the silt, so that clear water finally enters the SamijNala • The capacity of two settling tanks is of 3000 m^3, Each which can meet the requirement of maintaining proper water body to facilitate settling of sediments. • Besides two cemented settling tanks of size 20m X 15m X 2m (Avq.) 1200 m^3have been made scientifically with de- silting arrangement by which clear water will be recovered & used for plantation and other

	shall be designed keeping **50% safety margin over and above peak sudden rainfall (based on 50 years data)** and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide **adequate retention period to allow proper settling of the silt** material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	non-domestic purposes & balance silt free water will be discharged to the water course. These tanks also used for storing water collected by rain water harvesting • The sedimentation pond is de-silted regularly. Care is being taken to discharge sediment free clear water from the lease area. Two settling tanks having sufficient capacity is made so as the meet sudden rain fall and peak rain fall of the area. The sump capacity allows proper retention time which allows proper settling of sediments. • Sedimentation pits have been made in course and corner points of garland drains to prevent flow of sediment downstream and desilted regularly.
ix.	Dimension of the retaining wall at the toe of the over burden dump and the over burden benches within the mine to check, run-off and siltation shall be based on the rainfall data.	Retaining walls are made at the tow of the dump, and in each terrace of OB dump of suitable dimension to check runoff and siltation. Cemented Stone protection wall made at the base of the OB dump to prevent flow of soft materials from OB benches.
x.	Plantation shall be raised in an area of 31 ha including 7.5m wide green belt in the safety zone around the mining lease, over burden dump, backfilled and reclaimed area, mine benches, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per hectare.	Complete safety zone of 3.378 hact covered by Plantation with 9365 Nos of trees. Besides plantation also done in parking area (Plot No1-450 Nos) , non mineralized area Plot -1 3650 Nos, Plot no-3- 2225 Nos), base region of the dumps 2100, Avenue1078 Nos have been done covering 2.872,total 6.25 hectares have been done. Total 17340 No of trees have been planted. Infilling plantation is also done every year to maintain tree density. Native species like Simarua, Neem, Chakunda planted. Out of which Simarua shows highest growth and survival rate also higher than other species.
xi.	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of **SPM and RSPM** such as around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	•Effective & regular water sprinkling is being done in critical areas. Regular monitoring of ambient air quality is being done which confirms to norms prescribed by the Central Pollution Control Board. • Environmental Monitoring Report for the period Oct 22 to March 23 is submitted. It is seen that all the parameters are within limit.
xii.	Regular monitoring of water quality upstream and downstream of the Samij Nallah shall be carried out and record of monitored data should be maintained and submitted to the Ministry of Environment and Forests, its	Monitoring of the water quality of upstream and down-stream of Samij Nala and submitted to the Authorities. (Ref monitoring report.)

	Regional Office, Bhubneswar, the Central Groundwater Authority, the Regional Director, Central Ground Water Board, the State Pollution Control Board and the Central Pollution Control Board	
xiii.	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	• A hydrological study have been done and submitted to DOWR, Govt. Odisha. • Regional Director, Central Ground Water Board was consulted and steps have been taken for rain water harvesting and ground water recharge.
xiv.	Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing **new piezometers** in and around the mining lease during the mining operation. The periodicmonitoring [(at least four times ina year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season) shall be carried out in consultation with the State. Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the . Ministry of Environment and Forests and its Regional. Office Bhubneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	• The ground water level' and quality have studied by 6 Nos. of existing wells both in and around the ML area. • Periodic monitoring is being done and monitoring data submitted. • As per the records and date-collected from SGWA & CGWA the water level is not depleting in this region.
xv.	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water, if any) required for the project.	At present the requirement of water is limited to dust suppression, plantation which is about 5 to 8 cum per day which is met from rain water harvesting system. Rian harvest water is stored in large concre tetanks of 30 Mtr X 50 Mtr having depth 45 mtr is made in the lease area nearer to mineral processing plant(Crushing ,Screening & stacking) For drinking and other uses water of borewell done inside the lease area to be used. For thie CGWA has made site visit permission and all requirements have been complied. NOC is likely to be issued shortly by CGWB.
xvi.	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	• A rain water conservation plan is already made and included in the Final EIA/ EMP Report. • Accordingly we have taken up the work of preparing small check dams to control the flow of rain water with boulder beds along the sloping ground which will help for arresting water. • Check dams has been made in the gutter in MI area which will help both in conservation

		and augmentation of ground water source. • Rain water harvesting project have been done planned for collection and use iof rain water.
xvii.	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	•Regular monitoring of the vehicle emissions is being done and the status of the vehicle maintenance is being done by our mechanical engineer of mine. •Before weighment and issue of gate pass covering of the trucks are ensured. •No over loading is done also it is checked online by Dept. of Mines, Odisha Govt. •Vehicle emission monitoring report are enclosed.
xviii	No transportation of ore outside the mine lease area shall be carried out after the sunset.	Work done during general shift only in day light hours.
xix.	No blasting shall be carried out after the sunset Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting is being carried out only in day time. Controlled blasting measures like use of raydet, hole to hole delay and optimizing quantity of explosive charged in each hole as per the rock properties have resulted least ground vibration and no fly rock.
xx.	Drills shall either be operated with dust extractors or equipped with water injection system.	DTH drill machine with water injection system is used for blast hole drilling at mines.
xxi.	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	• Water sprinkling in vulnerable points has been made for effective dust suppression. • Loading and unloading areas efficient dust control arrangements like water sprinkling done with online sprinklers. •Spinklers are provided in all transfer points.
xxii.	Consent to operate shall be obtained from the State Pollution Control Board, Odisha prior to start of enhanced production from the mine.	Consent from OSPCB will be obtained after grant of EC. Presently CTO is obtained for 1.2 lakh tones production per year..
xxiii	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.	There is no colony in ML area and no accommodation have provide inside the mine. Mine is worked in daylight hours in general shift only. There are about 37 employees in mine. Swerage management is done by soak pits. ETP has been provided for waste water generated from mines and workshop.
xxiv	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Medical examination of all the employees are done before placement in mines as a process of Pre-placement medical examination called as Initial medical examination and examinations reports are submitted to DGMS and other authorities. In every five years periodical medical examination also done by doctors qualified in

		occupational health services. All such records are maintained at mines and submitted to DGMS and other authorities. Besides regular medical checkup camps are organized by management.
xxv	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	The total staff and operatives & labors of the mines is about 37 nos who are staying in nearby vii/age / settlement. Work is done in general shift in day light hours only. No house is required to be provided within ML area.
xxvi	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely leopard, bear, elephant etc. spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State-Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	A Site-specific Wild Life Management Plan has been prepared and has been approved by Chief Conservator of Forest (CCF) Wild Life. Conservation measures has been implemented as per the study and recommendation made thereof. Necessary funds like; *Rs.14,51,200 for implementation of Regional Wild Life Plan, *Rs.354,900 in CAMPA Fund, *Rs.41,50,000 for Site-specific Wild Life Conservation Plan
xxvii	The critical parameters such as SPM, RSPM, NOx in the ambient air within ·the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored (TDS, DO, PH, Total Suspended Solids (TSS) and Cr6). The monitored data shall be uploaded on the website of the company as well as displayed on a' display board at the project site at a' suitable location in public domain. The circular No. J-20012/1/2006-1A.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.In shall also· be referred in this regard for its compliance.	• The parameters like SPM, RSPM (PM1O), NOx& PPV at a distance of 300m is monitored periodically. • The parameters like TDS, DO, pH, TSS & Cr^6 of discharge water are being monitored and the results are displayed at the main gate. • The monitored data have been uploaded on the website (https://www.korpresources.in) of the company as well as displayed on a' display board at the project site in main gate which is well seen by public.
xxviii	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	The present plan is approved for 5 years which is valid upto March 2023 with progressive mine closure plan. At the present the life of the mine is more than 5 years. Final mine closer plan can be before 5 years of

		mine closure.
B. General Conditions:		
i.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Mining technology and scope of working is done as per scope of work approved by MoEF limiting the work upto 1,20,000 Tons per year. No change in mining technology and scope of working will be done without prior approval of MoEF or revised EC.
ii.	No change in the calendar plan including excavation, quantum of mineral iron ore and the waste shall be made.	Work is done as per the stipulations of present EC limiting the production to 1,20,000 Tons and handling of waste.
iii.	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone .for RSPM, SPM, S02 &NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Four monitoring stations have been set-up in core zone and Four in buffer zone. Monitoring of RSPM (PM_{10}), SPM, SO_2&NOx is being done monthly in consultation with OSPCB and reports are submitted to OSPCB regularly.
iv.	Data on ambient air quality (RSPM, SPM, $S0^2$&NOx) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Monitoring of RSPM (PM10), SPM, $S0^2$ &NOx is being done monthly and reports are submitted to the Ministry, OSPCB, CPCB& ROIOSPCB regularly.
v	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading, unloading and at transfer points should be provided and properly maintained.	• Water sprinkling in vulnerable points is being made regularly for effective dust control. Water spraying is done by mobile water tanker as well as by online sprinklers. Loading point like feed hopper, unloading points and stacking points, transfer points are fitted with suitable sprinklers so as to keep the material moist and to keep the dustb concentration level under control.
vi.	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Proper maintenance of the equipment's are being done for control of noise, Noise level in all working places is being monitored. Workers have been provided with ear plugs wherever necessary. Work is done in general shipt only , no night operation done. HEMM of lower capacity are used the noise level of which is much below the permissible limit.
vii.	Industrial waste water (workshop and waste water from the mine) should be properly	Oil & Grease trap for treatment of waste water of workshop has been provided. There

<table>
<tr><td></td><td>collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.</td><td>is no waste water from mines except rainy season which is discharged through settling tank and monitored.</td></tr>
<tr><td>viii.</td><td>Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspectsOccupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</td><td>Health surveillance programs are being conducted and the personnel working in dusty area have been properly trained and provided with protective equipment's.</td></tr>
<tr><td>ix.</td><td>A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.</td><td>An environment Management Cell has been created consisting of Mines manager, Geologist, Mechanical engineer, 'Mines foreman, Mining Mate, supervisor, 2 attendants / field man.</td></tr>
<tr><td>x.</td><td>The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be, reported to the Ministry and its Regional Office located at Bhubaneswar.</td><td>Separate fund allotment has been done and kept for this purpose only.
The yearly expenses made are as follows:
Rupees in Lakhs
<table><tr><td>2009 -10</td><td>12</td><td>2016-17</td><td>22</td></tr><tr><td>2010-11</td><td>14</td><td>2017-18</td><td>12</td></tr><tr><td>2011 -12</td><td>15</td><td>2018-19</td><td>14</td></tr><tr><td>2012-13</td><td>21</td><td>2019-20</td><td>30</td></tr><tr><td>2013 -14</td><td>20</td><td>2020-21</td><td>26</td></tr><tr><td>2014-15</td><td>18</td><td>2021-22</td><td>35</td></tr><tr><td>2015-16</td><td>20</td><td>2022-23</td><td>32</td></tr></table></td></tr>
<tr><td>xi.</td><td>The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</td><td>Date of financial closures - 31st March
Date of final approval of the project- 1st April 2009 for enhancement of production to 1,20,000 Tons per year. The mine was in operation prior to 2009 and land development made earlier which have been intimated to SPCB..</td></tr>
<tr><td>xii.</td><td>The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data I information / monitoring reports.</td><td>OSPCB regional office is regularly examining the compliance status every year before renewal of CTO for the next year. Also visits site and verify the details of compliances at site in different seasons.</td></tr>
<tr><td>xiii.</td><td>The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubneswar, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of</td><td>One web site of company opened and data are updated
(https://www.korpresources.in)</td></tr>
</table>

	compliance of the environment clearance conditions on their website and, update the same periodically and simultaneously send the same bye-mail to the Regional Office, Ministry of Environment and Forests, Bhubneswar.	
xiv.	A copy of clearance letter willbe marked to concerned Panchayat/ local NGO, if any, from whom suggestion /representation has been received while processing the proposal. The clearance letter shall also be put on the web site of the company.	After obtaining EC copy of the grant order was provided to local panchayat, local reporters of news papers. Public hearing details and suggestions have been placed in web site.
xv.	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office, Tehsildar's Office for 30 days.	We had submitted letters to DIC, OSPCB, Dist collector, Tahasildar and DFO enclosing copy of EC with request to place in notice board.
xvi.	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at website of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.	The clearance letter was published in odiya daily news papers ie Samaj, Dharitri by giving copy to local reporters of the respective news papers.

Submitted to Regional Officer MoEF Bhubaneswar with following enclosures.

1. Monitoring report 6 Nos for the period from Oct 22 TO March 2023..

Tantra Iron Ore Mines,
Korp Resouirces Pvt Ltd

GENERAL MANAGER
Tantara Iron Ore Mines
Korp Resources Pvt. Ltd.
Tensa,Odisha-770047

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/288 **DT-02.11.2022**

DISCIPLINE : **Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY : **M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK : **----**

REFERENCE NO. : KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE : Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY : ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE : Sealed

TYPE OF TEST : **Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED : **04.10.2022**

DATE OF TEST COMMENCMENT : **04.10.2022**

DATE OF COMPLETION : **29.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/367 - **Near Mines Quarry**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.10.2022	46.5	30.4	8.5	10.8	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.10.2022	44.2	28.4	6.8	9.7	0.22	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.10.2022	47.8	27.3	7.3	11.6	0.20	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.10.2022	44.3	23.6	7.1	12.5	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.10.2022	46.2	23.4	6.2	10.4	0.16	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.10.2022	44.8	22.3	5.6	11.8	0.20	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.10.2022	44.5	26.8	6.5	10.9	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.10.2022	47.1	23.2	7.2	11.9	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg.	**45.68**	**25.68**	**6.90**	**11.20**	**0.21**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/289 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.10.2022**

DATE OF TEST COMMENCMENT **: 04.10.2022**

DATE OF COMPLETION **: 29.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/368 - **Near Crusher Plant**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.10.2022	49.2	36.2	8.6	12.8	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.10.2022	47.8	32.8	8.2	13.1	0.26	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.10.2022	45.2	34.6	8.8	11.7	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.10.2022	54.5	37.2	7.5	11.3	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.10.2022	56.6	39.2	9.0	13.8	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.10.2022	55.4	33.5	8.6	12.0	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.10.2022	52.2	32.4	8.0	10.5	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.10.2022	50.3	30.8	8.3	12.5	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**51.40**	**34.59**	**8.38**	**12.21**	**0.29**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/290 **DT-02.11.2022**

DISCIPLINE : **Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY : **M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK : ----

REFERENCE NO. : KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE : Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY : ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE : Sealed

TYPE OF TEST : **Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED : **04.10.2022**

DATE OF TEST COMMENCMENT : **04.10.2022**

DATE OF COMPLETION : **29.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/369 - **Near Tensa Township**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.10.2022	43.2	27.8	6.5	11.8	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.10.2022	43.5	26.4	5.7	12.5	0.20	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.10.2022	46.1	26.3	6.2	10.6	0.23	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.10.2022	40.8	24.7	6.2	12.4	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.10.2022	44.3	23.8	5.8	10.6	0.20	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.10.2022	42	22.6	6.2	11.4	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.10.2022	42.2	24.5	5.6	10.2	0.23	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.10.2022	43.1	25.8	5.3	9.8	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**43.15**	**25.24**	**5.94**	**11.16**	**0.21**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/291 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.10.2022**

DATE OF TEST COMMENCMENT **: 04.10.2022**

DATE OF COMPLETION **: 29.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/370 - **Near Village Tantra**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.10.2022	35.8	21.4	6.1	11.3	0.12	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.10.2022	30.6	24.7	5.6	10.3	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.10.2022	31.8	20.4	6.8	10.5	0.10	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.10.2022	30.3	19.8	7.0	9.8	0.12	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.10.2022	29.8	25.2	5	10.0	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.10.2022	32.58	24.8	5.1	11.6	0.14	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.10.2022	33.4	21.6	6.2	9.0	0.12	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.10.2022	36.1	25.8	5.9	11.8	0.16	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**32.55**	**22.96**	**5.96**	**10.54**	**0.14**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/292 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.10.2022**

DATE OF TEST COMMENCMENT **: 06.10.2022**

DATE OF COMPLETION **: 31.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/371 - **Near Mines Quarry**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	04.10.2022	354
2.	06.10.2022	302
3.	10.10.2022	278
4.	12.10.2022	306
5.	15.10.2022	298
6.	18.10.2022	465
7.	26.10.2022	397
8.	28.10.2022	418
Monthly Average		**352.25**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/293 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.10.2022**

DATE OF TEST COMMENCMENT **: 06.10.2022**

DATE OF COMPLETION **: 31.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/372 - **Near Crusher Plant**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	04.10.2022	298
2.	06.10.2022	312
3.	10.10.2022	338
4.	12.10.2022	415
5.	15.10.2022	399
6.	18.10.2022	375
7.	26.10.2022	390
8.	28.10.2022	384
Monthly Average		**363.88**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/294 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.10.2022**

DATE OF TEST COMMENCMENT **: 06.10.2022**

DATE OF COMPLETION **: 31.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/373 - **Near Tensa Township**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.10.2022**	275
2.	**06.10.2022**	250
3.	**10.10.2022**	216
4.	**12.10.2022**	234
5.	**15.10.2022**	262
6.	**18.10.2022**	322
7.	**26.10.2022**	344
8.	**28.10.2022**	337
Monthly Average		**280.00**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/295 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.10.2022**

DATE OF TEST COMMENCMENT **: 06.10.2022**

DATE OF COMPLETION **: 31.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/374 - **Near Tantra Village**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.10.2022**	324
2.	**06.10.2022**	398
3.	**10.10.2022**	285
4.	**12.10.2022**	316
5.	**15.10.2022**	290
6.	**18.10.2022**	252
7.	**26.10.2022**	200
8.	**28.10.2022**	154
Monthly Average		**277.38**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/296 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Noise Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.10.2022**

DATE OF TEST COMMENCMENT **: 06.10.2022**

DATE OF COMPLETION **: 11.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/375 - Near Quarry

EMC/Lab/376 - Near Crusher Plant

EMC/Lab/377 - Near Tensa Township

EMC/Lab/378 - Near Village Tantra

Sl. No.	Date of Sampling	Location	Parameter	Time	
				Max.	Min.
01	04.10.2022	Near Quarry	dB (A) Leq	48.2	37.8
02		Near Crusher Plant	dB (A) Leq	51.6	41.2
03		Near Tensa Township	dB (A) Leq	50.9	35.6
04		Near Village Tantra	dB (A) Leq	57.4	39.4
STANDARD			Industrial Area	75	70
			Commercial Area	65	55
			Residential Area	55	45
			Sensitive Area	50	40

L_{min}: Minimum Noise Level L_{max}: Maximum Noise Level L_{eq}: Equivalent sound energy
DayTime: Between 06.00 am to 10.00pm; Night time: Between 10.00pm to 06.00am.

PREPARED BY
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(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/297 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Surface Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 24.10.2022**

DATE OF TEST COMMENCMENT **: 24.10.2022**

DATE OF COMPLETION **: 31.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/379 - SW1- US of Samaji Nala

EMC/Lab/380 - SW2- DS of Samaji Nala

Sl. No.	Test Parameters	Testing Methods	Unit	Max. Tolerance Limit as perIS 2296 :Class C	SW1	SW2
1	Colour, Max.	APHA 2010 B, C	Hazen	**300**	30	45
2	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5 to 8.5**	7.2	7.6
3	Iron as Fe, Max.	APHA 3500Fe, B	mg/l	**50**	0.28	0.37
4	Chloride as Cl, Max.	APHA 4500Cl^- C	mg/l	**600**	26.5	33.2
5	Dissolved Solids, Max.	APHA 2540 C	mg/l	**1500**	150.0	154.5
6	Dissolved Oxygen, Min.	APHA 4500-O C	mg/l	**4**	4.2	4.8
7	BOD for 3 days@ 27^0 C, Max.	APHA 5210 B	mg/l	**3**	<1.8	<1.8
8	Oil & Grease, Max.	APHA 5520 B	mg/l	**0.1**	ND	ND
9	Copper as Cu, Max.	APHA 3111 B,C	mg/l	**1.5**	<0.03	<0.03
10	Sulphate as SO_4, Max.	APHA 4500 SO_4^{2-} E	mg/l	**400**	15.2	16.4
11	Nitrate as NO_3, Max.	APHA 4500 – NO_3^- E	mg/l	**50**	1.62	1.78
12	Fluoride as F, Max.	APHA 4500F^- C	mg/l	**1.5**	0.14	0.17
13	Anionic detergent	APHA 5540 C	mg/l	**1**	ND	ND
14	Cadmium as Cd, Max.	APHA 4500 SO_4^{2-} E	mg/l	**0.01**	<0.003	<0.003
15	Selenium as Se, Max.	APHA 4500 – NO_3^- E	mg/l	**0.05**	<0.001	<0.001
16	Arsenic as As, Max.	APHA 4500F^- C	mg/l	**0.2**	<0.001	<0.001
17	Cyanide as CN, Max.	APHA 4500 CN^- C,D	mg/l	**0.05**	ND	ND
18	Phenolic compound as C_6H_5OH, Max.	APHA 5530 B,D	mg/l	**0.005**	<0.001	<0.001
19	Lead as Pb, Max.	APHA 3111 B,C	mg/l	**0.1**	<0.01	<0.01
20	Zinc as Zn, Max.	APHA 3111 B,C	mg/l	**15**	<0.05	<0.05
21	Hexavalent Chromium as Cr^{+6}, Max.	APHA 3111 C	mg/l	**0.05**	<0.05	<0.05
22	Total Coliform, Max.	APHA 9221 B	MPN/l00ml	**5000**	460	540
23	Faecal Coliform	APHA 9221 B	MPN/l00ml	--	10	10

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR SEVEN DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/298 **DT-02.11.2022**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ground Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 24.10.2022**

DATE OF TEST COMMENCMENT **: 24.10.2022**

DATE OF COMPLETION **: 31.10.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/381 - **GW1- Mining Lease Area (Bore Well)**

EMC/Lab/382 - **GW2- VillageTensa (Tube Well)**

EMC/Lab/383 - **GW3- Village Tantra (Tube Well)**

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS: 10500,2012		GW1	GW2	GW3
				Acceptable Limit	Permissible Limit			
1	Colour	APHA 2010 B, C	Hazen	**5**	**15**	<5	<5	<5
2	Odour	APHA 2150 B	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	**1**	**5**	<1	<1	<1
5	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5-8.5**	**No**	7.28	7.34	7.46
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**200**	**600**	74.0	80.0	85.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	**No**	0.12	0.14	0.17
8	Chloride (as Cl)	APHA 4500Cl^- C	mg/l	**250**	**1000**	24.0	27.0	30.0
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	**0.2**	**1.0**	ND	ND	ND
10	Total Dissolved Solids	APHA 2540 C	mg/l	**500**	**2000**	198.0	212.0	218.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	**200**	15.2	18.6	16.5
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	**100**	8.4	9.8	9.8
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	**1.5**	<0.03	<0.03	<0.03
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	**0.3**	0.04	0.07	0.08
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	**400**	8.62	8.75	9.25
16	Nitrate (as NO_3)	APHA 4500 – NO_3^- E	mg/l	**45**	**No**	1.38	1.52	1.67
17	Fluoride (as F)	APHA 4500F^- C	mg/l	**1.0**	**1.5**	0.11	0.14	0.12
18	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	**0.002**	<0.001	<0.001	<0.001

19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	**No**	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.003**	**No**	<0.003	<0.003	<0.003
21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	**No**	<0.001	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	**0.01**	**0.05**	<0.001	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	**0.05**	**No**	ND	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.01**	**No**	<0.01	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	**15**	0.12	0.10	0.13
26	Chromium (as Cr)	APHA 3111 C	mg/l	**0.05**	**No**	<0.05	<0.05	<0.05
27	Mineral Oil	APHA 5220 B	mg/l	**0.5**	**No**	<0.05	<0.05	<0.05
28	Total Alkalinity (as $CaCO_3$)	APHA 2320 B	mg/l	**200**	**600**	72.0	75.0	70.0
29	Aluminium (as Al)	APHA 3111, C	mg/l	**0.03**	**0.2**	<0.01	<0.01	<0.01
30	Boron (as B)	APHA 3500-B	mg/l	**0.5**	**1.0**	<0.2	<0.2	<0.2
31	Total Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8
32	Faecal Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR SEVEN DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/320 **DT-03.12.2022**

DISCIPLINE : **Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY : **M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK : **----**

REFERENCE NO. : KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE : Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY : ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE : Sealed

TYPE OF TEST : **Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED : **04.11.2022**

DATE OF TEST COMMENCMENT : **04.11.2022**

DATE OF COMPLETION : **30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/405 - **Near Mines Quarry**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.11.2022	56.2	33.5	7.5	12.4	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.11.2022	50.4	34.4	8.2	11.5	0.26	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.11.2022	51.2	30.2	7.6	12.6	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.11.2022	42.7	29.4	8.0	10.4	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.11.2022	45.2	30.7	7.4	11.3	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
19.11.2022	46.7	32.6	6.6	12.3	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.11.2022	50.4	33.0	6.3	12.7	0.23	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
28.11.2022	54.2	34.8	7.8	11.6	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg.	**49.63**	**32.33**	**7.43**	**11.85**	**0.29**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/321 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.11.2022**

DATE OF TEST COMMENCMENT **: 04.11.2022**

DATE OF COMPLETION **: 30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/406 - **Near Crusher Plant**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.11.2022	52.7	34.6	10.5	15.6	0.29	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.11.2022	53.3	35.9	9.1	14.8	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.11.2022	50.7	35.7	10.4	12.4	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.11.2022	51.2	36.3	10.3	12.0	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.11.2022	48.6	37.4	10.6	12.1	0.34	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
19.11.2022	47.2	34.2	10.5	13.2	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.11.2022	50.8	34.5	9.6	14.8	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
28.11.2022	51.9	32.4	10.3	14.2	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**50.80**	**35.13**	**10.16**	**13.64**	**0.33**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/322 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.11.2022**

DATE OF TEST COMMENCMENT **: 04.11.2022**

DATE OF COMPLETION **: 30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/407 - **Near Tensa Township**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.11.2022	44	24.3	6.1	13.5	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.11.2022	45.6	30.6	6.4	12.8	0.2	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.11.2022	47.1	24.3	6.1	11.6	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.11.2022	47.2	27.9	6.4	12.8	0.2	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.11.2022	44	24.3	6.1	11.6	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
19.11.2022	42.3	23.9	6.6	12.1	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.11.2022	46.7	30.6	6.4	9.8	0.2	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
28.11.2022	47.2	27.9	6.4	12.3	0.23	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**45.51**	**26.73**	**6.31**	**12.06**	**0.21**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/323 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.11.2022**

DATE OF TEST COMMENCMENT **: 04.11.2022**

DATE OF COMPLETION **: 30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/408 - **Near Village Tantra**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.11.2022	43.2	29.7	6.2	12.6	0.18	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.11.2022	36.1	24.5	5.8	10.2	0.19	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.11.2022	32.6	22.1	6.3	10.4	0.15	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.11.2022	30.2	20.4	7	10.5	0.13	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.11.2022	36.9	24.3	5.6	9.8	0.17	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
19.11.2022	35.3	25.5	5.4	11.3	0.2	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.11.2022	40.2	26.2	6.0	9.4	0.11	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
28.11.2022	41.4	28.7	6.6	11.6	0.19	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**36.99**	**25.18**	**6.11**	**10.73**	**0.17**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/324 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.11.2022**

DATE OF TEST COMMENCMENT **: 05.11.2022**

DATE OF COMPLETION **: 30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/409 - **Near Mines Quarry**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	03.11.2022	435
2.	07.11.2022	397
3.	10.11.2022	363
4.	14.11.2022	357
5.	17.11.2022	310
6.	21.11.2022	424
7.	25.11.2022	460
8.	28.11.2022	517
Monthly Average		**407.87**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.
3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY
4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/325 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.11.2022**

DATE OF TEST COMMENCMENT **: 05.11.2022**

DATE OF COMPLETION **: 30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/410 - **Near Crusher Plant**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	03.11.2022	355
2.	07.11.2022	330
3.	10.11.2022	372
4.	14.11.2022	356
5.	17.11.2022	410
6.	21.11.2022	398
7.	25.11.2022	406
8.	28.11.2022	412
Monthly Average		**379.88**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/326 **DT-03.12.2022**

DISCIPLINE : **Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY : **M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK : **----**

REFERENCE NO. : KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE : Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY : ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE : Sealed

TYPE OF TEST : **Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED : **05.11.2022**

DATE OF TEST COMMENCMENT : **05.11.2022**

DATE OF COMPLETION : **30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/411 - **Near Tensa Township**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	**03.11.2022**	332
2.	**07.11.2022**	355
3.	**10.11.2022**	310
4.	**14.11.2022**	292
5.	**17.11.2022**	250
6.	**21.11.2022**	317
7.	**25.11.2022**	322
8.	**28.11.2022**	338
Monthly Average		**314.5**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/327 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.11.2022**

DATE OF TEST COMMENCMENT **: 05.11.2022**

DATE OF COMPLETION **: 30.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/412 - **Near Tantra Village**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**03.11.2022**	290
2.	**07.11.2022**	353
3.	**10.11.2022**	372
4.	**14.11.2022**	298
5.	**17.11.2022**	340
6.	**21.11.2022**	263
7.	**25.11.2022**	255
8.	**28.11.2022**	314
Monthly Average		**310.62**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/328 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Noise Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.11.2022**

DATE OF TEST COMMENCMENT **: 21.11.2022**

DATE OF COMPLETION **: 25.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/413	-	Near Quarry
EMC/Lab/414	-	Near Crusher Plant
EMC/Lab/415	-	Near Tensa Township
EMC/Lab/416	-	Near Village Tantra

Sl. No.	Date of Sampling	Location	Parameter	Time	
				Max.	Min.
01	19.11.2022	Near Quarry	dB (A) Leq	67.9	53.8
02		Near Crusher Plant	dB (A) Leq	74.6	69.7
03		Near Tensa Township	dB (A) Leq	65.3	60.7
04		Near Village Tantra	dB (A) Leq	52.8	49.6
STANDARD			Industrial Area	75	70
			Commercial Area	65	55
			Residential Area	55	45
			Sensitive Area	50	40

L$_{min}$: Minimum Noise Level L$_{max}$: Maximum Noise Level L$_{eq}$: Equivalent sound energy

DayTime: Between 06.00 am to 10.00pm; Night time: Between 10.00pm to 06.00am.

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/329 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Surface Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.11.2022**

DATE OF TEST COMMENCMENT **: 21.11.2022**

DATE OF COMPLETION **: 28.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/417 - SW1- US of Samaji Nala

EMC/Lab/418 - SW2- DS of Samaji Nala

Sl. No.	Test Parameters	Testing Methods	Unit	Max. Tolerance Limit as perIS 2296 : Class C	SW1	SW2
1	Colour, Max.	APHA 2010 B, C	Hazen	**300**	40	60
2	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5 to 8.5**	6.7	7.0
3	Iron as Fe, Max.	APHA 3500Fe, B	mg/l	**50**	0.50	0.58
4	Chloride as Cl, Max.	APHA 4500Cl^- C	mg/l	**600**	43.6	47.0
5	Dissolved Solids, Max.	APHA 2540 C	mg/l	**1500**	175.0	182.0
6	Dissolved Oxygen, Min.	APHA 4500-O C	mg/l	**4**	4.2	5.0
7	BOD for 3 days@ 27^0 C, Max.	APHA 5210 B	mg/l	**3**	<1.8	<1.8
8	Oil & Grease, Max.	APHA 5520 B	mg/l	**0.1**	ND	ND
9	Copper as Cu, Max.	APHA 3111 B,C	mg/l	**1.5**	<0.03	<0.03
10	Sulphate as SO_4, Max.	APHA 4500 SO_4^{2-} E	mg/l	**400**	20.0	22.5
11	Nitrate as NO_3, Max.	APHA 4500 – NO_3^- E	mg/l	**50**	2.80	2.86
12	Fluoride as F, Max.	APHA 4500F^- C	mg/l	**1.5**	0.10	0.15
13	Anionic detergent	APHA 5540 C	mg/l	**1**	ND	ND
14	Cadmium as Cd, Max.	APHA 4500 SO_4^{2-} E	mg/l	**0.01**	<0.003	<0.003
15	Selenium as Se, Max.	APHA 4500 – NO_3^- E	mg/l	**0.05**	<0.001	<0.001
16	Arsenic as As, Max.	APHA 4500F^- C	mg/l	**0.2**	<0.001	<0.001
17	Cyanide as CN, Max.	APHA 4500 CN^- C,D	mg/l	**0.05**	ND	ND
18	Phenolic compound as C_6H_5OH, Max.	APHA 5530 B,D	mg/l	**0.005**	<0.001	<0.001
19	Lead as Pb, Max.	APHA 3111 B,C	mg/l	**0.1**	<0.01	<0.01
20	Zinc as Zn, Max.	APHA 3111 B,C	mg/l	**15**	<0.05	<0.05
21	Hexavalent Chromium as Cr^{+6}, Max.	APHA 3111 C	mg/l	**0.05**	<0.05	<0.05
22	Total Coliform, Max.	APHA 9221 B	MPN/l00ml	**5000**	250	270
23	Faecal Coliform	APHA 9221 B	MPN/l00ml	--	<1.8	<1.8

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/330 **DT-03.12.2022**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ground Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.11.2022**

DATE OF TEST COMMENCMENT **: 21.11.2022**

DATE OF COMPLETION **: 28.11.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/419 - **GW1- Mining Lease Area (Bore Well)**

EMC/Lab/420 - **GW2- VillageTensa (Tube Well)**

EMC/Lab/421 - **GW3- Village Tantra (Tube Well)**

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS: 10500,2012		GW1	GW2	GW3
				Acceptable Limit	Permissible Limit			
1	Colour	APHA 2010 B, C	Hazen	**5**	**15**	<5	<5	<5
2	Odour	APHA 2150 B	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	**1**	**5**	<1	<1	<1
5	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5-8.5**	**No**	7.6	7.0	7.3
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**200**	**600**	104.0	121.0	110.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	**No**	0.15	0.25	0.22
8	Chloride (as Cl)	APHA 4500Cl^- C	mg/l	**250**	**1000**	32.0	28.0	36.0
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	**0.2**	**1.0**	ND	ND	ND
10	Total Dissolved Solids	APHA 2540 C	mg/l	**500**	**2000**	220.0	231.0	242.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	**200**	30.70	26.80	31.95
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	**100**	8.8	10.2	12.5
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	**1.5**	<0.03	<0.03	<0.03
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	**0.3**	0.05	0.06	0.03
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	**400**	10.2	11.5	10.4
16	Nitrate (as NO_3)	APHA 4500 – NO_3^- E	mg/l	**45**	**No**	2.86	2.63	2.40
17	Fluoride (as F)	APHA 4500F^- C	mg/l	**1.0**	**1.5**	0.10	0.12	0.15
18	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	**0.002**	<0.001	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	**No**	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.003**	**No**	<0.003	<0.003	<0.003
21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	**No**	<0.001	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	**0.01**	**0.05**	<0.001	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	**0.05**	**No**	ND	ND	ND

24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.01**	**No**	<0.01	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	**15**	0.12	0.14	0.13
26	Chromium (as Cr)	APHA 3111 C	mg/l	**0.05**	**No**	<0.05	<0.05	<0.05
27	Mineral Oil	APHA 5220 B	mg/l	**0.5**	**No**	<0.05	<0.05	<0.05
28	Total Alkalinity (as $CaCO_3$)	APHA 2320 B	mg/l	**200**	**600**	118.0	112.0	113.0
29	Aluminium (as Al)	APHA 3111, C	mg/l	**0.03**	**0.2**	<0.01	<0.01	<0.01
30	Boron (as B)	APHA 3500-B	mg/l	**0.5**	**1.0**	<0.2	<0.2	<0.2
31	Total Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8
32	Faecal Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/353 **DT-04.01.2023**

DISCIPLINE : **Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY : **M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK : **----**

REFERENCE NO. : KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE : Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY : ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE : Sealed

TYPE OF TEST : **Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED : **04.12.2022**

DATE OF TEST COMMENCMENT : **04.12.2022**

DATE OF COMPLETION : **29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/467 - **Near Mines Quarry**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.12.2022	68.2	38.4	9.7	18.6	0.41	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.12.2022	70.5	37.2	10.5	15.4	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.12.2022	72.7	30.7	9.8	15.9	0.4	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.12.2022	71.4	29.8	10.8	12.4	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.12.2022	68.8	31.6	9.4	13.6	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.12.2022	69.2	30.2	8.9	15.9	0.4	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.12.2022	68.1	33.6	9.7	16.7	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.12.2022	65.6	32.6	10.5	17.6	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg.	**69.31**	**33.01**	**9.91**	**15.76**	**0.36**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/354 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.12.2022**

DATE OF TEST COMMENCMENT **: 04.12.2022**

DATE OF COMPLETION **: 29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/468 - **Near Crusher Plant**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.12.2022	65.4	36.2	10.7	18.2	0.41	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.12.2022	60.5	38.5	9.3	17.2	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.12.2022	58.2	35.8	10.2	14.6	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.12.2022	62.8	37.4	11.2	13.6	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.12.2022	60.2	38.2	9.8	14.5	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.12.2022	58.8	36.2	10.2	14.6	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.12.2022	56.7	35.8	10.4	15.4	0.3	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.12.2022	52.0	32.6	11.1	14.8	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**59.33**	**36.34**	**10.36**	**15.36**	**0.35**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

1. **THIS TEST REPORT IS BASED ON THE SAMPLE RECEIVED BY OUR LABORATORY.**
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3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/355 **DT-04.01.2023**

DISCIPLINE : **Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY : **M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK : ----

REFERENCE NO. : KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE : Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY : ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE : Sealed

TYPE OF TEST : **Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED : **04.12.2022**

DATE OF TEST COMMENCMENT : **04.12.2022**

DATE OF COMPLETION : **29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/469 - **Near Tensa Township**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.12.2022	61.4	37.4	7.6	14.6	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.12.2022	51.6	33.4	6.8	15.4	0.29	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.12.2022	58.6	31.6	7.1	16.3	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.12.2022	61.4	37.4	6.3	17.2	0.34	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.12.2022	59.8	29.8	7.8	14.6	0.29	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.12.2022	63.2	31.4	7.4	15.1	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.12.2022	58.6	37.4	6.3	14.6	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.12.2022	58.6	32.1	7.6	13.9	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**59.15**	**33.81**	**7.11**	**15.21**	**0.30**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/356 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.12.2022**

DATE OF TEST COMMENCMENT **: 04.12.2022**

DATE OF COMPLETION **: 29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/470 - **Near Village Tantra**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.12.2022	56.3	32.1	6.4	14.6	0.22	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
05.12.2022	57.2	30	5.8	12.3	0.2	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.12.2022	54.1	29.6	6.3	10.2	0.17	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.12.2022	56.3	30	5.1	11.8	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.12.2022	61.2	31	5.9	14.2	0.23	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.12.2022	53	27.4	5.1	11.8	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.12.2022	62.6	29.6	6.4	9.8	0.2	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.12.2022	58.9	31.1	7.6	10.6	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**57.45**	**30.10**	**6.08**	**11.91**	**0.22**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/357 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.12.2022**

DATE OF TEST COMMENCMENT **: 06.12.2022**

DATE OF COMPLETION **: 29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/471 - **Near Mines Quarry**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	04.12.2022	478
2.	07.12.2022	406
3.	11.12.2022	370
4.	14.12.2022	335
5.	15.12.2022	436
6.	19.12.2022	482
7.	25.12.2022	441
8.	27.12.2022	498
Monthly Average		**430.75**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/358 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.12.2022**

DATE OF TEST COMMENCMENT **: 06.12.2022**

DATE OF COMPLETION **: 29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/472 - **Near Crusher Plant**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	**04.12.2022**	312
2.	**07.12.2022**	446
3.	**11.12.2022**	450
4.	**14.12.2022**	415
5.	**15.12.2022**	480
6.	**19.12.2022**	447
7.	**25.12.2022**	342
8.	**27.12.2022**	366
Monthly Average		**407.25**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/359 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.12.2022**

DATE OF TEST COMMENCMENT **: 06.12.2022**

DATE OF COMPLETION **: 29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/473 - **Near Tensa Township**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.12.2022**	412
2.	**07.12.2022**	460
3.	**11.12.2022**	347
4.	**14.12.2022**	362
5.	**15.12.2022**	355
6.	**19.12.2022**	305
7.	**25.12.2022**	334
8.	**27.12.2022**	436
Monthly Average		**376.37**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/360 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.12.2022**

DATE OF TEST COMMENCMENT **: 06.12.2022**

DATE OF COMPLETION **: 29.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/474 - **Near Tantra Village**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.12.2022**	330
2.	**07.12.2022**	338
3.	**11.12.2022**	360
4.	**14.12.2022**	415
5.	**15.12.2022**	343
6.	**19.12.2022**	290
7.	**25.12.2022**	255
8.	**27.12.2022**	316
Monthly Average		**330.87**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/361 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Noise Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 13.12.2022**

DATE OF TEST COMMENCMENT **: 13.12.2022**

DATE OF COMPLETION **: 18.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/475 - Near Quarry

EMC/Lab/476 - Near Crusher Plant

EMC/Lab/477 - Near Tensa Township

EMC/Lab/478 - Near Village Tantra

Sl. No.	Date of Sampling	Location	Parameter	Time	
				Max.	Min.
01	11.12.2022	Near Quarry	dB (A) Leq	68.5	65.43
02		Near Crusher Plant	dB (A) Leq	70.7	52.6
03		Near Tensa Township	dB (A) Leq	55.2	54.3
04		Near Village Tantra	dB (A) Leq	71.6	56.7
STANDARD			Industrial Area	75	70
			Commercial Area	65	55
			Residential Area	55	45
			Sensitive Area	50	40

L$_{min}$: Minimum Noise Level L$_{max}$: Maximum Noise Level L$_{eq}$: Equivalent sound energy

DayTime: Between 06.00 am to 10.00pm; Night time: Between 10.00pm to 06.00am.

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/362 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Surface Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 20.12.2022**

DATE OF TEST COMMENCMENT **: 20.12.2022**

DATE OF COMPLETION **: 26.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/479 - SW1- US of Samaji Nala

EMC/Lab/480 - SW2- DS of Samaji Nala

Sl. No.	Test Parameters	Testing Methods	Unit	Max. Tolerance Limit as perIS 2296 : Class C	SW1	SW2
1	Colour, Max.	APHA 2010 B, C	Hazen	**300**	40	60
2	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5 to 8.5**	6.5	7.2
3	Iron as Fe, Max.	APHA 3500Fe, B	mg/l	**50**	0.35	0.44
4	Chloride as Cl, Max.	APHA 4500Cl^- C	mg/l	**600**	30.3	32.8
5	Dissolved Solids, Max.	APHA 2540 C	mg/l	**1500**	160.0	175.0
6	Dissolved Oxygen, Min.	APHA 4500-O C	mg/l	**4**	4.8	5.2
7	BOD for 3 days@ 27^0 C, Max.	APHA 5210 B	mg/l	**3**	<1.8	<1.8
8	Oil & Grease, Max.	APHA 5520 B	mg/l	**0.1**	ND	ND
9	Copper as Cu, Max.	APHA 3111 B,C	mg/l	**1.5**	<0.03	<0.03
10	Sulphate as SO_4, Max.	APHA 4500 SO_4^{2-} E	mg/l	**400**	15.2	18.2
11	Nitrate as NO_3, Max.	APHA 4500 – NO_3^- E	mg/l	**50**	2.5	2.8
12	Fluoride as F, Max.	APHA 4500F^- C	mg/l	**1.5**	0.12	0.18
13	Anionic detergent	APHA 5540 C	mg/l	**1**	ND	ND
14	Cadmium as Cd, Max.	APHA 4500 SO_4^{2-} E	mg/l	**0.01**	<0.003	<0.003
15	Selenium as Se, Max.	APHA 4500 – NO_3^- E	mg/l	**0.05**	<0.001	<0.001
16	Arsenic as As, Max.	APHA 4500F^- C	mg/l	**0.2**	<0.001	<0.001
17	Cyanide as CN, Max.	APHA 4500 CN^- C,D	mg/l	**0.05**	ND	ND
18	Phenolic compound as C_6H_5OH, Max.	APHA 5530 B,D	mg/l	**0.005**	<0.001	<0.001
19	Lead as Pb, Max.	APHA 3111 B,C	mg/l	**0.1**	<0.01	<0.01
20	Zinc as Zn, Max.	APHA 3111 B,C	mg/l	**15**	<0.05	<0.05
21	Hexavalent Chromium as Cr^{+6}, Max.	APHA 3111 C	mg/l	**0.05**	<0.05	<0.05
22	Total Coliform, Max.	APHA 9221 B	MPN/l00ml	**5000**	460	580
23	Faecal Coliform	APHA 9221 B	MPN/l00ml	--	10	20

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR SEVEN DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/22-23/KRPL/363 **DT-04.01.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ground Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 20.12.2022**

DATE OF TEST COMMENCMENT **: 20.12.2022**

DATE OF COMPLETION **: 26.12.2022**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/481 - **GW1- Mining Lease Area (Bore Well)**

EMC/Lab/482 - **GW2- VillageTensa (Tube Well)**

EMC/Lab/483 - **GW3- Village Tantra (Tube Well)**

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS: 10500,2012		GW1	GW2	GW3
				Acceptable Limit	Permissible Limit			
1	Colour	APHA 2010 B, C	Hazen	**5**	**15**	<5	<5	<5
2	Odour	APHA 2150 B	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	**1**	**5**	<1	<1	<1
5	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5-8.5**	**No**	7.25	7.20	7.38
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**200**	**600**	95.0	92.0	105.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	**No**	0.16	0.20	0.22
8	Chloride (as Cl)	APHA 4500Cl^- C	mg/l	**250**	**1000**	20.0	24.0	28.0
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	**0.2**	**1.0**	ND	ND	ND
10	Total Dissolved Solids	APHA 2540 C	mg/l	**500**	**2000**	202.0	210.0	218.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	**200**	20.3	24.7	26.7
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	**100**	8.6	10.5	9.0
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	**1.5**	<0.03	<0.03	<0.03
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	**0.3**	0.05	0.08	0.02
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	**400**	10.2	10.5	9.4
16	Nitrate (as NO_3)	APHA 4500 – NO_3^- E	mg/l	**45**	**No**	2.4	2.32	2.40
17	Fluoride (as F)	APHA 4500F^- C	mg/l	**1.0**	**1.5**	0.21	0.16	0.20
18	Phenolic Compounds (asC_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	**0.002**	<0.001	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	**No**	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.003**	**No**	<0.003	<0.003	<0.003

21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	**No**	<0.001	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	**0.01**	**0.05**	<0.001	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	**0.05**	**No**	ND	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.01**	**No**	<0.01	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	**15**	0.16	0.11	0.13
26	Chromium (as Cr)	APHA 3111 C	mg/l	**0.05**	**No**	<0.05	<0.05	<0.05
27	Mineral Oil	APHA 5220 B	mg/l	**0.5**	**No**	<0.05	<0.05	<0.05
28	Total Alkalinity (as $CaCO_3$)	APHA 2320 B	mg/l	**200**	**600**	95.6	102.0	118.5
29	Aluminium (as Al)	APHA 3111, C	mg/l	**0.03**	**0.2**	<0.01	<0.01	<0.01
30	Boron (as B)	APHA 3500-B	mg/l	**0.5**	**1.0**	<0.2	<0.2	<0.2
31	Total Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8
32	Faecal Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

1. THIS TEST REPORT IS BASED ON THE SAMPLE RECEIVED BY OUR LABORATORY.

2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR SEVEN DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/12 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/23 - **Near Mines Quarry**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.01.2023	70.2	40.5	11.2	23.5	0.42	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.01.2023	72.1	39.2	12.2	20.1	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.01.2023	78.6	40.8	12.5	23.6	0.34	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.01.2023	72.5	39.6	10.4	22.6	0.29	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.01.2023	73.6	38.2	10.6	21.6	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.01.2023	74.5	35.6	10.8	20.4	0.27	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.01.2023	71.6	38.3	11.1	18.7	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
26.01.2023	70.2	40.2	12.8	17.6	0.41	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg.	**72.91**	**39.05**	**11.45**	**21.01**	**0.35**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/13 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/24 - **Near Crusher Plant**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.01.2023	72.1	34.6	11.6	25	0.47	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.01.2023	68.2	38.1	10.6	21.1	0.4	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.01.2023	65.5	38.2	9.7	14.5	0.39	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.01.2023	72.1	34.6	11.6	25	0.47	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.01.2023	59.7	38.2	9.7	14.5	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.01.2023	54.3	33.2	8.8	16.8	0.36	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.01.2023	55.6	36.9	8.8	16.8	0.36	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
26.01.2023	58.7	34.7	11.6	17.2	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**63.28**	**36.06**	**10.30**	**18.86**	**0.40**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. **THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.**
3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/14 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/25 - **Near Tensa Township**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.01.2023	68.1	40	10.5	25.8	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.01.2023	64.5	36.4	12.2	26.1	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.01.2023	69.3	33.7	7.2	20.4	0.37	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.01.2023	58.6	33	12.8	20.2	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.01.2023	56	29.4	10.6	21.2	0.26	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.01.2023	63.8	33.7	7.6	16.7	0.3	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.01.2023	59.3	29.3	12.4	18.7	0.37	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
26.01.2023	57	31.6	8.1	16.3	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**62.08**	**33.39**	**10.18**	**20.68**	**0.33**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

5. THIS TEST REPORT IS BASED ON THE SAMPLE RECEIVED BY OUR LABORATORY.

6. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

7. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

8. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/15 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/26 - **Near Village Tantra**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.01.2023	59.3	33.4	6.9	16.5	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.01.2023	58.2	30.5	5.4	16.7	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
08.01.2023	50	32.6	6.7	14.3	0.22	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
12.01.2023	59.4	31	7.8	13.9	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.01.2023	53	26.8	7.1	14.6	0.22	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.01.2023	50.7	25.3	5.8	12.2	0.29	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
23.01.2023	62.6	31	7.0	10.6	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
26.01.2023	51.6	26.4	7.8	11.2	0.20	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**55.60**	**29.63**	**6.81**	**13.75**	**0.25**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/16 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

04.04.2022DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/27 - **Near Mines Quarry**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	04.01.2023	526
2.	08.01.2023	490
3.	10.01.2023	433
4.	13.01.2023	410
5.	16.01.2023	392
6.	20.01.2023	380
7.	24.01.2023	418
8.	27.01.2023	405
Monthly Average		**431.75**
Standard		**1200**

PREPARED BY
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(Chemist)

AUTHORIZED SIGNATORY
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(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/17 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/28 - **Near Crusher Plant**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	**04.01.2023**	510
2.	**08.01.2023**	382
3.	**10.01.2023**	420
4.	**13.01.2023**	510
5.	**16.01.2023**	470
6.	**20.01.2023**	362
7.	**24.01.2023**	345
8.	**27.01.2023**	300
Monthly Average		**412.37**
Standard		**1200**

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/18 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/29 - **Near Tensa Township**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.01.2023**	412
2.	**08.01.2023**	390
3.	**10.01.2023**	345
4.	**13.01.2023**	336
5.	**16.01.2023**	330
6.	**20.01.2023**	305
7.	**24.01.2023**	380
8.	**27.01.2023**	410
Monthly Average		**363.5**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/19 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 05.01.2023**

DATE OF TEST COMMENCMENT **: 05.01.2023**

DATE OF COMPLETION **: 29.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/30 - **Near Tantra Village**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.01.2023**	446
2.	**08.01.2023**	380
3.	**10.01.2023**	296
4.	**13.01.2023**	278
5.	**16.01.2023**	300
6.	**20.01.2023**	285
7.	**24.01.2023**	256
8.	**27.01.2023**	292
Monthly Average		**316.62**
Standard		**1200**

PREPARED BY
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(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/20 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Noise Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 16.01.2023**

DATE OF TEST COMMENCMENT **: 16.01.2023**

DATE OF COMPLETION **: 20.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/31 - Near Quarry

EMC/Lab/32 - Near Crusher Plant

EMC/Lab/33 - Near Tensa Township

EMC/Lab/34 - Near Village Tantra

Sl. No.	Date of Sampling	Location	Parameter	Time	
				Max.	Min.
01	15.01.2023	Near Quarry	dB (A) Leq	63.6	52.5
02		Near Crusher Plant	dB (A) Leq	72.2	65.6
03		Near Tensa Township	dB (A) Leq	67.5	61.0
04		Near Village Tantra	dB (A) Leq	58.7	55.4
STANDARD			Industrial Area	75	70
			Commercial Area	65	55
			Residential Area	55	45
			Sensitive Area	50	40

L_{min}: Minimum Noise Level L_{max}: Maximum Noise Level L_{eq}: Equivalent sound energy
DayTime: Between 06.00 am to 10.00pm; Night time: Between 10.00pm to 06.00am.

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/21 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Surface Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.01.2023**

DATE OF TEST COMMENCMENT **: 21.01.2023**

DATE OF COMPLETION **: 25.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/35 - SW1- US of Samaji Nala

EMC/Lab/36 - SW2- DS of Samaji Nala

Sl. No.	Test Parameters	Testing Methods	Unit	Max. Tolerance Limit as perIS 2296 : Class C	SW1	SW2
1	Colour, Max.	APHA 2010 B, C	Hazen	**300**	40	60
2	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5 to 8.5**	6.62	6.88
3	Iron as Fe, Max.	APHA 3500Fe, B	mg/l	**50**	0.56	0.72
4	Chloride as Cl, Max.	APHA 4500Cl^- C	mg/l	**600**	45.4	50.0
5	Dissolved Solids, Max.	APHA 2540 C	mg/l	**1500**	173.0	178.0
6	Dissolved Oxygen, Min.	APHA 4500-O C	mg/l	**4**	3.3	4.0
7	BOD for 3 days@ 27^0 C, Max.	APHA 5210 B	mg/l	**3**	<1.8	<1.8
8	Oil & Grease, Max.	APHA 5520 B	mg/l	**0.1**	ND	ND
9	Copper as Cu, Max.	APHA 3111 B,C	mg/l	**1.5**	<0.03	<0.03
10	Sulphate as SO_4, Max.	APHA 4500 SO_4^{2-} E	mg/l	**400**	20.3	21.8
11	Nitrate as NO_3, Max.	APHA 4500 – NO_3^- E	mg/l	**50**	2.46	2.58
12	Fluoride as F, Max.	APHA 4500F^- C	mg/l	**1.5**	0.18	0.22
13	Anionic detergent	APHA 5540 C	mg/l	**1**	ND	ND
14	Cadmium as Cd, Max.	APHA 4500 SO_4^{2-} E	mg/l	**0.01**	<0.003	<0.003
15	Selenium as Se, Max.	APHA 4500 – NO_3^- E	mg/l	**0.05**	<0.001	<0.001
16	Arsenic as As, Max.	APHA 4500F^- C	mg/l	**0.2**	<0.001	<0.001
17	Cyanide as CN, Max.	APHA 4500 CN^- C,D	mg/l	**0.05**	ND	ND
18	Phenolic compound as C_6H_5OH, Max.	APHA 5530 B,D	mg/l	**0.005**	<0.001	<0.001
19	Lead as Pb, Max.	APHA 3111 B,C	mg/l	**0.1**	<0.01	<0.01
20	Zinc as Zn, Max.	APHA 3111 B,C	mg/l	**15**	<0.05	<0.05
21	Hexavalent Chromium as Cr^{+6}, Max.	APHA 3111 C	mg/l	**0.05**	<0.05	<0.05
22	Total Coliform, Max.	APHA 9221 B	MPN/l00ml	**5000**	380	420
23	Faecal Coliform	APHA 9221 B	MPN/l00ml	--	8	10

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/22 **DT-03.02.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ground Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.01.2023**

DATE OF TEST COMMENCMENT **: 21.01.2023**

DATE OF COMPLETION **: 25.01.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/37 - **GW1- Mining Lease Area (Bore Well)**

EMC/Lab/38 - **GW2- VillageTensa (Tube Well)**

EMC/Lab/39 - **GW3- Village Tantra (Tube Well)**

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS:10500,2012		GW1	GW2	GW3
				Acceptable Limit	Permissible Limit			
1	Colour	APHA 2010 B, C	Hazen	**5**	**15**	<5	<5	<5
2	Odour	APHA 2150 B	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	**1**	**5**	<1	<1	<1
5	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5-8.5**	**No**	7.42	7.52	7.20
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**200**	**600**	100.0	108.0	125.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	**No**	0.18	0.22	0.25
8	Chloride (as Cl)	APHA 4500Cl^- C	mg/l	**250**	**1000**	20.0	25.0	15.0
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	**0.2**	**1.0**	ND	ND	ND
10	Total Dissolved Solids	APHA 2540 C	mg/l	**500**	**2000**	192.0	212.0	198.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	**200**	22.92	28.42	36.15
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	**100**	11.8	8.3	6.2
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	**1.5**	<0.03	<0.03	<0.03
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	**0.3**	0.04	0.06	0.08
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	**400**	11.2	9.6	11.6
16	Nitrate (as NO_3)	APHA 4500 – NO_3^- E	mg/l	**45**	**No**	2.2	2.8	2.9
17	Fluoride (as F)	APHA 4500F^- C	mg/l	**1.0**	**1.5**	0.08	0.15	0.18
18	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	**0.002**	<0.001	<0.001	<0.001

19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	**No**	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.003**	**No**	<0.003	<0.003	<0.003
21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	**No**	<0.001	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	**0.01**	**0.05**	<0.001	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	**0.05**	**No**	ND	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.01**	**No**	<0.01	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	**15**	0.17	0.12	0.10
26	Chromium (as Cr)	APHA 3111 C	mg/l	**0.05**	**No**	<0.05	<0.05	<0.05
27	Mineral Oil	APHA 5220 B	mg/l	**0.5**	**No**	<0.05	<0.05	<0.05
28	Total Alkalinity (as $CaCO_3$)	APHA 2320 B	mg/l	**200**	**600**	102.0	98.0	110.0
29	Aluminium (as Al)	APHA 3111, C	mg/l	**0.03**	**0.2**	<0.01	<0.01	<0.01
30	Boron (as B)	APHA 3500-B	mg/l	**0.5**	**1.0**	<0.2	<0.2	<0.2
31	Total Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8
32	Faecal Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/32 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.02.2023**

DATE OF TEST COMMENCMENT **: 04.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/58 - **Near Mines Quarry**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.02.2023	75.3	42.6	11.4	26.3	0.48	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.02.2023	72.2	40.8	11.6	23.5	0.45	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.02.2023	70.6	38.6	12.4	24.6	0.43	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.02.2023	71.3	40.5	10.6	21.2	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.02.2023	68.3	43.5	10.5	27.3	0.43	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.02.2023	70.5	37.8	11.0	22.5	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.02.2023	73.5	42.6	11.8	26.2	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
25.02.2023	78.3	42.5	11.4	25.0	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg.	**72.50**	**41.11**	**11.34**	**24.58**	**0.42**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/33 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.02.2023**

DATE OF TEST COMMENCMENT **: 04.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/59 - **Near Crusher Plant**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.02.2023	70.3	42.3	13.1	25.2	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.02.2023	72.6	38.2	11.4	22.5	0.42	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.02.2023	68.3	36.2	10.7	20.6	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.02.2023	60.8	40.0	12.2	21.2	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.02.2023	59.4	38.4	10.3	21.6	0.36	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.02.2023	64.6	35.2	11.5	20.8	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.02.2023	68.2	37.2	9.4	22.1	0.37	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
25.02.2023	61.4	38.6	11.4	24.3	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**65.70**	**38.6**	**11.25**	**22.29**	**0.36**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/34 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.02.2023**

DATE OF TEST COMMENCMENT **: 04.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/60 - **Near Tensa Township**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.02.2023	67.8	35.2	8.3	20.2	0.42	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.02.2023	62.6	33.8	7.0	18.3	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.02.2023	58.6	30.6	7.6	16.2	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.02.2023	64.2	37.2	6.5	17.8	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.02.2023	58.1	34.7	8.2	18.0	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.02.2023	63.5	32.0	7.1	16.8	0.33	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.02.2023	59.0	28.4	7.9	14.7	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
25.02.2023	61.6	36.8	8.2	17.4	0.41	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**61.93**	**33.59**	**7.60**	**17.43**	**0.37**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/35 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.02.2023**

DATE OF TEST COMMENCMENT **: 04.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/61 - **Near Village Tantra**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.02.2023	59.8	30.8	8.2	20.4	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
06.02.2023	58.2	31.4	7.0	22.5	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
09.02.2023	60.6	32.6	6.8	20.8	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
13.02.2023	59.4	30.8	8.0	21.3	0.26	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
16.02.2023	64.2	29.4	6.6	16.7	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
20.02.2023	59.8	32.9	6.2	15.9	0.30	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
22.02.2023	61.3	31.3	7.8	16.2	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
25.02.2023	62.7	32.5	8.1	15.2	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**60.75**	**31.46**	**7.34**	**18.63**	**0.30**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/36 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.02.2023**

DATE OF TEST COMMENCMENT **: 06.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/62 - **Near Mines Quarry**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	04.02.2023	632
2.	06.02.2023	575
3.	10.02.2023	462
4.	13.02.2023	514
5.	17.02.2023	480
6.	20.02.2023	436
7.	23.02.2023	420
8.	25.02.2023	484
Monthly Average		**500.37**
Standard		**1200**

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(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/37 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.02.2023**

DATE OF TEST COMMENCMENT **: 06.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/63 - **Near Crusher Plant**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	04.02.2023	626
2.	06.02.2023	546
3.	10.02.2023	463
4.	13.02.2023	475
5.	17.02.2023	516
6.	20.02.2023	484
7.	23.02.2023	404
8.	25.02.2023	474
Monthly Average		**498.5**
Standard		**1200**

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Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/38 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.02.2023**

DATE OF TEST COMMENCMENT **: 06.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/64 - **Near Tensa Township**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.02.2023**	524
2.	**06.02.2023**	474
3.	**10.02.2023**	462
4.	**13.02.2023**	385
5.	**17.02.2023**	363
6.	**20.02.2023**	309
7.	**23.02.2023**	374
8.	**25.02.2023**	406
Monthly Average		**412.12**
Standard		**1200**

PREPARED BY
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(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/39 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.02.2023**

DATE OF TEST COMMENCMENT **: 06.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/65 - **Near Tantra Village**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	**04.02.2023**	336
2.	**06.02.2023**	375
3.	**10.02.2023**	312
4.	**13.02.2023**	363
5.	**17.02.2023**	305
6.	**20.02.2023**	320
7.	**23.02.2023**	378
8.	**25.02.2023**	396
Monthly Average		**348.12**
Standard		**1200**

PREPARED BY
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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/40 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Noise Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 15.02.2023**

DATE OF TEST COMMENCMENT **: 15.02.2023**

DATE OF COMPLETION **: 20.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/66	-	Near Quarry
EMC/Lab/67	-	Near Crusher Plant
EMC/Lab/68	-	Near Tensa Township
EMC/Lab/69	-	Near Village Tantra

Sl. No.	Date of Sampling	Location	Parameter	Time	
				Max.	Min.
01	13.02.2023	Near Quarry	dB (A) Leq	72.5	56.5
02		Near Crusher Plant	dB (A) Leq	70.3	42.0
03		Near Tensa Township	dB (A) Leq	65.8	40.7
04		Near Village Tantra	dB (A) Leq	46.6	38.6
STANDARD			Industrial Area	75	70
			Commercial Area	65	55
			Residential Area	55	45
			Sensitive Area	50	40

L_{min}: Minimum Noise Level L_{max}: Maximum Noise Level L_{eq}: Equivalent sound energy Day Time: Between 06.00 am to 10.00pm; Night time: Between 10.00pm to 06.00am.

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/41 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Surface Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 20.02.2023**

DATE OF TEST COMMENCMENT **: 20.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/70 - SW1- US of Samaji Nala

EMC/Lab/71 - SW2- DS of Samaji Nala

Sl. No.	Test Parameters	Testing Methods	Unit	Max. Tolerance Limit as perIS 2296 :Class C	SW1	SW2
1	Colour, Max.	APHA 2010 B, C	Hazen	**300**	50	80
2	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5 to 8.5**	6.36	7.12
3	Iron as Fe, Max.	APHA 3500Fe, B	mg/l	**50**	0.38	0.45
4	Chloride as Cl, Max.	APHA 4500Cl^- C	mg/l	**600**	28.5	30.6
5	Dissolved Solids, Max.	APHA 2540 C	mg/l	**1500**	152.0	161.0
6	Dissolved Oxygen, Min.	APHA 4500-O C	mg/l	**4**	4.5	5.0
7	BOD for 3 days@ 27^0 C, Max.	APHA 5210 B	mg/l	**3**	<1.8	<1.8
8	Oil & Grease, Max.	APHA 5520 B	mg/l	**0.1**	ND	ND
9	Copper as Cu, Max.	APHA 3111 B,C	mg/l	**1.5**	<0.03	<0.03
10	Sulphate as SO_4, Max.	APHA 4500 SO_4^{2-} E	mg/l	**400**	16.2	18.5
11	Nitrate as NO_3, Max.	APHA 4500 – NO_3^- E	mg/l	**50**	1.4	2.2
12	Fluoride as F, Max.	APHA 4500F^- C	mg/l	**1.5**	0.14	0.20
13	Anionic detergent	APHA 5540 C	mg/l	**1**	ND	ND
14	Cadmium as Cd, Max.	APHA 4500 SO_4^{2-} E	mg/l	**0.01**	<0.003	<0.003
15	Selenium as Se, Max.	APHA 4500 – NO_3^- E	mg/l	**0.05**	<0.001	<0.001
16	Arsenic as As, Max.	APHA 4500F^- C	mg/l	**0.2**	<0.001	<0.001
17	Cyanide as CN, Max.	APHA 4500 CN^- C,D	mg/l	**0.05**	ND	ND
18	Phenolic compound as C_6H_5OH, Max.	APHA 5530 B,D	mg/l	**0.005**	<0.001	<0.001
19	Lead as Pb, Max.	APHA 3111 B,C	mg/l	**0.1**	<0.01	<0.01
20	Zinc as Zn, Max.	APHA 3111 B,C	mg/l	**15**	<0.05	<0.05
21	Hexavalent Chromium as Cr^{+6}, Max.	APHA 3111 C	mg/l	**0.05**	<0.05	<0.05
22	Total Coliform, Max.	APHA 9221 B	MPN/l00ml	**5000**	530	670
23	Faecal Coliform	APHA 9221 B	MPN/l00ml	--	10	30

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR SEVEN DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/42 **DT-03.03.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ground Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 20.02.2023**

DATE OF TEST COMMENCMENT **: 20.02.2023**

DATE OF COMPLETION **: 27.02.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/72 - **GW1- Mining Lease Area (Bore Well)**

EMC/Lab/73 - **GW2- VillageTensa (Tube Well)**

EMC/Lab/74 - **GW3- Village Tantra (Tube Well)**

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS:10500,2012		GW1	GW2	GW3
				Acceptable Limit	Permissible Limit			
1	Colour	APHA 2010 B, C	Hazen	**5**	**15**	<5	<5	<5
2	Odour	APHA 2150 B	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	**1**	**5**	<1	<1	<1
5	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5-8.5**	**No**	7.12	7.24	7.52
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**200**	**600**	82.0	90.0	95.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	**No**	0.15	0.17	0.20
8	Chloride (as Cl)	APHA 4500Cl^- C	mg/l	**250**	**1000**	15.0	20.0	24.0
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	**0.2**	**1.0**	ND	ND	ND
10	Total Dissolved Solids	APHA 2540 C	mg/l	**500**	**2000**	186.0	190.0	204.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	**200**	24.8	25.2	26.2
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	**100**	5.4	6.6	6.2
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	**1.5**	<0.03	<0.03	<0.03
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	**0.3**	0.04	0.08	0.05
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	**400**	8.2	8.8	9.2
16	Nitrate (as NO_3)	APHA 4500 – NO_3^- E	mg/l	**45**	**No**	1.6	2.0	2.2
17	Fluoride (as F)	APHA 4500F^- C	mg/l	**1.0**	**1.5**	0.16	0.12	0.18
18	Phenolic Compounds (asC_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	**0.002**	<0.001	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	**No**	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.003**	**No**	<0.003	<0.003	<0.003
21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	**No**	<0.001	<0.001	<0.001

22	Arsenic (as As)	APHA 3114 B	mg/l	**0.01**	**0.05**	<0.001	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	**0.05**	**No**	ND	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.01**	**No**	<0.01	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	**15**	0.15	0.18	0.10
26	Chromium (as Cr)	APHA 3111 C	mg/l	**0.05**	**No**	<0.05	<0.05	<0.05
27	Mineral Oil	APHA 5220 B	mg/l	**0.5**	**No**	<0.05	<0.05	<0.05
28	Total Alkalinity (as $CaCO_3$)	APHA 2320 B	mg/l	**200**	**600**	85.5	86.8	90.2
29	Aluminium (as Al)	APHA 3111, C	mg/l	**0.03**	**0.2**	<0.01	<0.01	<0.01
30	Boron (as B)	APHA 3500-B	mg/l	**0.5**	**1.0**	<0.2	<0.2	<0.2
31	Total Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8
32	Faecal Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

1. THIS TEST REPORT IS BASED ON THE SAMPLE RECEIVED BY OUR LABORATORY.

2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR SEVEN DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/64 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.03.2023**

DATE OF TEST COMMENCMENT **: 04.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/102 - **Near Mines Quarry**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.03.2023	60.2	35.2	10.3	18.2	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
07.03.2023	68.2	40.4	12.0	20.1	0.32	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.03.2023	55.2	28.2	11.5	15.6	0.20	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
14.03.2023	61.4	24.8	10.4	16.4	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.03.2023	66.2	26.9	9.2	13.5	0.35	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
21.03.2023	72.1	32.2	12.6	16.8	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
24.03.2023	58.5	28.6	10.5	15.2	0.34	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.03.2023	61.6	31.2	11.1	16.8	0.31	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg.	**62.93**	**30.94**	**10.95**	**16.58**	**0.30**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

1. **THIS TEST REPORT IS BASED ON THE SAMPLE RECEIVED BY OUR LABORATORY.**
2. **THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.**
3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/65 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.03.2023**

DATE OF TEST COMMENCMENT **: 04.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/103 - **Near Crusher Plant**

Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.03.2023	75.5	40.4	13.2	24.2	0.45	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
07.03.2023	74.2	38.6	12.2	22.0	0.43	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.03.2023	69.5	31.4	11.6	18.2	0.38	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
14.03.2023	71.1	33.0	12.4	22.4	0.42	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.03.2023	68.5	29.5	10.7	20.6	0.40	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
21.03.2023	65.3	33.0	12.5	21.2	0.42	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
24.03.2023	70.3	32.2	11.4	24.7	0.42	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.03.2023	68.0	30.1	12.0	25.0	0.36	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**70.30**	**33.53**	**12.00**	**22.29**	**0.41**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

1. **THIS TEST REPORT IS BASED ON THE SAMPLE RECEIVED BY OUR LABORATORY.**
2. **THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.**
3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/66 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.03.2023**

DATE OF TEST COMMENCMENT **: 04.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/104 - **Near Tensa Township**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.03.2023	61.3	32.4	12.5	23.5	0.23	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
07.03.2023	59.5	34.6	11.3	20.2	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.03.2023	60.6	32.4	11.8	20.4	0.22	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
14.03.2023	57.3	31.8	13.2	19.6	0.27	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.03.2023	54.7	28.5	12.0	20.0	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
21.03.2023	60.2	29.2	11.2	19.4	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
24.03.2023	58.3	25.3	10.6	16.6	0.28	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.03.2023	53.7	21.7	10.4	15.6	0.25	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**58.20**	**29.49**	**11.63**	**19.41**	**0.25**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/67 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Quality (AAQ)

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 04.03.2023**

DATE OF TEST COMMENCMENT **: 04.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/105 - **Near Village Tantra**

Date Of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.03.2023	42.2	24.4	10.9	17.6	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
07.03.2023	51.0	29.7	11.3	21	0.22	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
10.03.2023	45.7	25.6	12.6	19.4	0.19	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
14.03.2023	42.2	24.4	10.9	17.6	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
17.03.2023	48.2	25.6	12.6	19.4	0.19	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
21.03.2023	45.6	22.1	10.4	14.2	0.21	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
24.03.2023	45.7	25.6	12.6	15.8	0.24	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
27.03.2023	46.8	24.9	11.3	20.4	0.26	<10	<20.0	<0.01	<3.0	<1	<1	<0.1
Avg	**45.93**	**25.29**	**11.58**	**18.18**	**0.22**	**<10**	**<20.0**	**<0.01**	**<3.0**	**<1**	**<1**	**<0.1**
NAAQ* Standard	**100**	**60**	**80**	**80**	**4**	**100**	**400**	**1.0**	**20**	**6**	**5**	**1**
Methods of Analysis	**IS: 5182 (Part-23)**	**Gravimetric Method as per CPCB method**	**IS: 5182 (Part-2)**	**IS: 5182 (Part-6)**	**IS: 5182 (Part-10)**	**IS: 5182 (Part-9)**	**Indophenol Blue Method followed by CPCB**	**IS: 5182 (Part-22)**	**As per CPCB method followed by AAS**	**As per CPCB method followed by AAS**	**IS: 5182 (Part-11)**	**IS: 5182 (Part-12)**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/68 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.03.2023**

DATE OF TEST COMMENCMENT **: 06.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/106 - **Near Mines Quarry**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	04.03.2023	414.0
2.	08.03.2023	398.0
3.	11.03.2023	343.0
4.	14.03.2023	317.0
5.	18.03.2023	310.0
6.	22.03.2023	352.0
7.	25.03.2023	388.0
8.	27.03.2023	367.0
Monthly Average		**361.12**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.
3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY
4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/69 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.03.2023**

DATE OF TEST COMMENCMENT **: 06.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/107 - **Near Crusher Plant**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	04.03.2023	540.0
2.	08.03.2023	526.0
3.	11.03.2023	420.0
4.	14.03.2023	374.0
5.	18.03.2023	315.0
6.	22.03.2023	383.0
7.	25.03.2023	390.0
8.	27.03.2023	414.0
Monthly Average		**420.25**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. **THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.**
3. **THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY**
4. **THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.**

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/70 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.03.2023**

DATE OF TEST COMMENCMENT **: 06.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/108 - **Near Tensa Township**

Sl. No.	Date of Sampling	Particulate Matter (µg/m^3)
1.	**04.03.2023**	345.0
2.	**08.03.2023**	323.0
3.	**11.03.2023**	389.0
4.	**14.03.2023**	345.0
5.	**18.03.2023**	327.0
6.	**22.03.2023**	310.0
7.	**25.03.2023**	424.0
8.	**27.03.2023**	378.0
Monthly Average		**355.12**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

Remarks:-

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2. THE TEST RESULT RELATES ONLY TO THE ITEM TESTED.

3. THE REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF THE TESTING LABORATORY

4. THE SAMPLE WILL BE RETAINED IN OUR LABORATORY FOR 30 DAYS AFTER DATE OF TEST COMPLETION.

-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/71 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Air Fugitive Dust Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 06.03.2023**

DATE OF TEST COMMENCMENT **: 06.03.2023**

DATE OF COMPLETION **: 29.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/109 - **Near Tantra Village**

Sl. No.	Date of Sampling	Particulate Matter ($\mu g/m^3$)
1.	**04.03.2023**	336
2.	**08.03.2023**	317
3.	**11.03.2023**	283
4.	**14.03.2023**	245
5.	**18.03.2023**	268
6.	**22.03.2023**	226
7.	**25.03.2023**	298
8.	**27.03.2023**	276
Monthly Average		**281.12**
Standard		**1200**

PREPARED BY
Laxmi Sahoo
(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/72 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Atmospheric Pollution.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ambient Noise Sample

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 14.03.2023**

DATE OF TEST COMMENCMENT **: 14.03.2023**

DATE OF COMPLETION **: 18.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/110	-	Near Quarry
EMC/Lab/111	-	Near Crusher Plant
EMC/Lab/112	-	Near Tensa Township
EMC/Lab/113	-	Near Village Tantra

Sl. No.	Date of Sampling	Location	Parameter	Time	
				Max.	Min.
01	13.03.2023	Near Quarry	dB (A) Leq	66.2	38.8
02		Near Crusher Plant	dB (A) Leq	52.0	34.5
03		Near Tensa Township	dB (A) Leq	43.7	30.4
04		Near Village Tantra	dB (A) Leq	41.2	27.2
STANDARD			Industrial Area	75	70
			Commercial Area	65	55
			Residential Area	55	45
			Sensitive Area	50	40

L_{min}: Minimum Noise Level L_{max}: Maximum Noise Level L_{eq}: Equivalent sound energy Day Time: Between 06.00 am to 10.00pm; Night time: Between 10.00pm to 06.00am.

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/73 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Surface Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.03.2023**

DATE OF TEST COMMENCMENT **: 21.03.2023**

DATE OF COMPLETION **: 28.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/114 - SW1- US of Samaji Nala

EMC/Lab/115 - SW2- DS of Samaji Nala

Sl. No.	Test Parameters	Testing Methods	Unit	Max. Tolerance Limit as perIS 229(:Class C	SW1	SW2
1	Colour, Max.	APHA 2010 B, C	Hazen	**300**	60	80
2	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5 to 8.5**	7.34	7.62
3	Iron as Fe, Max.	APHA 3500Fe, B	mg/l	**50**	0.44	0.50
4	Chloride as Cl, Max.	APHA 4500Cl^- C	mg/l	**600**	26.2	32.2
5	Dissolved Solids, Max.	APHA 2540 C	mg/l	**1500**	142.0	150.0
6	Dissolved Oxygen, Min.	APHA 4500-O C	mg/l	**4**	4.2	4.7
7	BOD for 3 days@ 27^0 C, Max.	APHA 5210 B	mg/l	**3**	<1.8	<1.8
8	Oil & Grease, Max.	APHA 5520 B	mg/l	**0.1**	ND	ND
9	Copper as Cu, Max.	APHA 3111 B,C	mg/l	**1.5**	<0.03	<0.03
10	Sulphate as SO_4, Max.	APHA 4500 SO_4^{2-} E	mg/l	**400**	14.8	17.2
11	Nitrate as NO_3, Max.	APHA 4500 – NO_3^- E	mg/l	**50**	1.58	1.62
12	Fluoride as F, Max.	APHA 4500F^- C	mg/l	**1.5**	0.12	0.17
13	Anionic detergent	APHA 5540 C	mg/l	**1**	ND	ND
14	Cadmium as Cd, Max.	APHA 4500 SO_4^{2-} E	mg/l	**0.01**	<0.003	<0.003
15	Selenium as Se, Max.	APHA 4500 – NO_3^- E	mg/l	**0.05**	<0.001	<0.001
16	Arsenic as As, Max.	APHA 4500F^- C	mg/l	**0.2**	<0.001	<0.001
17	Cyanide as CN, Max.	APHA 4500 CN^- C,D	mg/l	**0.05**	ND	ND
18	Phenolic compound as C_6H_5OH, Max.	APHA 5530 B,D	mg/l	**0.005**	<0.001	<0.001
19	Lead as Pb, Max.	APHA 3111 B,C	mg/l	**0.1**	<0.01	<0.01
20	Zinc as Zn, Max.	APHA 3111 B,C	mg/l	**15**	<0.05	<0.05
21	Hexavalent Chromium as Cr^{+6}, Max.	APHA 3111 C	mg/l	**0.05**	<0.05	<0.05
22	Total Coliform, Max.	APHA 9221 B	MPN/l00ml	**5000**	710	750
23	Faecal Coliform	APHA 9221 B	MPN/l00ml	--	10	30

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(Chemist)

AUTHORIZED SIGNATORY
Sanghamitra Das
(Technical Manager)

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-END OF REPORT-

TEST REPORT

REPORT NO.:- EMC/23-24/KRPL/74 **DT-04.04.2023**

DISCIPLINE **: Chemical Testing, Water.**

NAME & ADDRESS OF CLIENT/AGENCY **: M/s Tantra Iron Ore Mines, Tensa, Sundergarh.**

NAME OF PROJECT/WORK **: ----**

REFERENCE NO. **:** KRPL/ENV/22-23-408 Dt- 17.03.2022

TYPE OF SAMPLE **:** Ground Water.

SAMPLE COLLECTED BY **:** ECPL Representative in presence of client's Representative

CONDITION OF SAMPLE **:** Sealed

TYPE OF TEST **: Physical & Chemical Parameters**

DATE OF SAMPLE RECEIVED **: 21.03.2023**

DATE OF TEST COMMENCMENT **: 21.03.2023**

DATE OF COMPLETION **: 28.03.2023**

Sample Specification: **Sample ID. No.** **Sample Identification /Locations**

EMC/Lab/116 - **GW1- Mining Lease Area (Bore Well)**

EMC/Lab/117 - **GW2- VillageTensa (Tube Well)**

EMC/Lab/118 - **GW3- Village Tantra (Tube Well)**

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS: 10500,2012		GW1	GW2	GW3
				Acceptable Limit	Permissible Limit			
1	Colour	APHA 2010 B, C	Hazen	**5**	**15**	<5	<5	<5
2	Odour	APHA 2150 B	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
3	Taste	APHA 2160 C	--	**Agreeable**	**Agreeable**	Agreeable	Agreeable	Agreeable
4	Turbidity	APHA 2130 B	NTU	**1**	**5**	<1	<1	<1
5	pH Value @ 25ºC	APHA 4500H^+ B	--	**6.5-8.5**	**No**	7.25	7.34	7.46
6	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	**200**	**600**	75.0	74.0	78.0
7	Iron (as Fe)	APHA 3500Fe, B	mg/l	**0.3**	**No**	0.11	0.14	0.13
8	Chloride (as Cl)	APHA 4500Cl^- C	mg/l	**250**	**1000**	22.0	25.0	30.0
9	Residual, free Chlorine	APHA 4500Cl, B	mg/l	**0.2**	**1.0**	ND	ND	ND
10	Total Dissolved Solids	APHA 2540 C	mg/l	**500**	**2000**	195.0	202.0	213.0
11	Calcium (as Ca)	APHA 3500Ca B	mg/l	**75**	**200**	19.4	20.1	16.6
12	Magnesium (as Mg)	APHA 3500Mg B	mg/l	**30**	**100**	6.4	6.2	10.7
13	Copper (as Cu)	APHA 3111 B,C	mg/l	**0.05**	**1.5**	<0.03	<0.03	<0.03
14	Manganese (as Mn)	APHA 3500Mn B	mg/l	**0.1**	**0.3**	0.06	0.02	0.05
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	**200**	**400**	8.2	8.6	9.0
16	Nitrate (as NO_3)	APHA 4500 – NO_3^- E	mg/l	**45**	**No**	1.47	1.52	1.77
17	Fluoride (as F)	APHA 4500F^- C	mg/l	**1.0**	**1.5**	0.05	0.14	0.11
18	Phenolic Compounds (asC_6H_5OH)	APHA 5530 B,D	mg/l	**0.001**	**0.002**	<0.001	<0.001	<0.001
19	Mercury (as Hg)	APHA 3500 Hg	mg/l	**0.001**	**No**	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	**0.003**	**No**	<0.003	<0.003	<0.003

21	Selenium (as Se)	APHA 3114 B	mg/l	**0.01**	**No**	<0.001	<0.001	<0.001
22	Arsenic (as As)	APHA 3114 B	mg/l	**0.01**	**0.05**	<0.001	<0.001	<0.001
23	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	**0.05**	**No**	ND	ND	ND
24	Lead (as Pb)	APHA 3111 B,C	mg/l	**0.01**	**No**	<0.01	<0.01	<0.01
25	Zinc (as Zn)	APHA 3111 B,C	mg/l	**5**	**15**	0.16	0.13	0.17
26	Chromium (as Cr)	APHA 3111 C	mg/l	**0.05**	**No**	<0.05	<0.05	<0.05
27	Mineral Oil	APHA 5220 B	mg/l	**0.5**	**No**	<0.05	<0.05	<0.05
28	Total Alkalinity (as $CaCO_3$)	APHA 2320 B	mg/l	**200**	**600**	72.0	73.0	76.0
29	Aluminium (as Al)	APHA 3111, C	mg/l	**0.03**	**0.2**	<0.01	<0.01	<0.01
30	Boron (as B)	APHA 3500-B	mg/l	**0.5**	**1.0**	<0.2	<0.2	<0.2
31	Total Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8
32	Faecal Coliform	APHA 9221 B	MPN/100 ml	**Absent**	**Absent**	<1.8	<1.8	<1.8

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