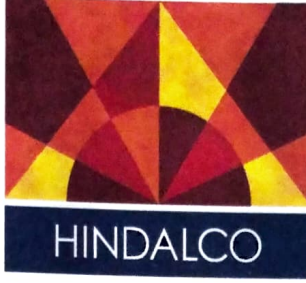


**ADITYA BIRLA**



To,  
The Addl. Principal Chief Conservator of Forest (C),  
Ministry of Env., Forest and Climate Change,  
Regional Office (WCZ),  
Ground Floor, East Wing, New Secretariat Building,  
Civil Line, Nagpur-440001 (MS)

30-05-2023

**Sub:** - Status of compliance of EC condition (Half yearly status of compliance report) in respect of Tatijharia Bauxite Mine (Lease area- 1218.762 Ha.) of M/s Hindalco Industries Limited of Chhattisgarh state for the period from October-2022 to March-2023.

*Ref No: - Environment Clearance Letter No-J-11015/337/2007-IA. II (M) dated Aug. 9, 2007*

Dear Sir,

We do herewith submit half yearly status of EC compliance report in respect of Tatijharia Bauxite Mine, Lease area – 1218.762 Ha, of M/s Hindalco Industries Limited P.O- Kusmi, Dist.- Balrampur-Ramanujanj, Chhattisgarh state, PIN-497224 for the period from October-2022 to March-2023. The lease details is as below: -

Lease area	Production Capacity	Lease Period
1218.762 Ha.	400000 Tonnes	25.06.1998 to 24.06.2048 (50years)

We trust that the measures taken towards environment safeguard comply with the stipulated environmental conditions. We assure that we comply all the conditions laid down in the consent letter and also abide to follow all the Rules and Regulations.

Thanking you,

Yours's faithfully

For, Hindalco Industries Limited

(Vijay Chauhan)

Agent of Mines

E-Mail – [chauhan.vijaykumar@adityabirla.com](mailto:chauhan.vijaykumar@adityabirla.com)

**Agent of Mines**

**Samri Mines Division**

**Hindalco Industries Ltd**

**Name of the Project** : **Tatijharia Bauxite Mines (1218.762Ha. Capacity-4.00LTPA),  
M/s Hindalco Industries Ltd**

**Environment Clearance No  
& date** : **J-11015/337/2007 – IA.(IIM) dated 09.08.2007**

**Period of compliance Report** : **1st October 2022 to 31st March 2023**

#### **A. Specific Conditions**

**Condition-1:** Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority.

**Reply to Condition 1:** The Wildlife Management plan has been prepared and approved by competent Authority vide letter no. 12/13/2967, dated 07.10.2013. The copy attached as **Annexure –A**.

**Condition-2:** Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ petition (Civil) No. 460 of 2004 as may be applicable to this project.

**Reply to Condition 2:** Noted.

**Condition-3:** Conservation plan for schedule I fauna (if found in the study area) shall be prepared in consultation with Wildlife Department for implementation.

**Reply to Condition 3:** The Conservation plan for schedule I fauna have been prepared and approved by competent authority & submitted to ministry. The detail list of flora & fauna along with the approved conservation plan is attached as **Annexure –B**.

**Condition-4:** The mining operations shall be restricted to above ground water table and it shall not intersect ground water table. Prior approval of the Ministry and CGWA should be obtained for mining if any below water table.

**Reply to Condition 4:** The mining operation is restricted to well above ground water table. As per our current mining operation, ultimate depth of working is about 15 meters below. The ground water table is below the depth of our mining operation. Piezometer has been installed at strategic location in the Lease area for monitoring the ground water level and the average depth of which is 25-30m. Hence there is no intersection of groundwater level during course of mining operation.

**Condition-5:** Top soil, if any shall be stacked properly with proper slope with adequate safeguards and shall must be used for reclamation and rehabilitation of mined out area.

**Reply to Condition 5:** Top soil generated during mining operation is being concurrently spread on backfilled area to restore its original forms. However, if required it will be stacked properly with proper slope and adequate safeguards.



Land preparation for reclamation

**Condition-6:** Over burden shall be stacked at earmarked dump site (s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30m, each stage shall preferably be of 10m and over all slope of the dump shall not exceed 28°. The mine pit area shall be reclaimed by back filling the OB in a phased manner. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.

**Reply to Condition 6:** As such there is no any active OB dump at present. As per approved Mining Plan, OB generated during mine operation is being utilized for concurrently back filling of the mined out area for reclamation purpose. Old inactive OB dump has been stabilized by vegetation with suitable native species to prevent erosion and surface run off.



Old Inactive OB Dump with Plantation

**Condition-7:** Garland drains shall be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected shall be utilized for watering the mine area, roads, greens belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for both mine pit and for waste dump and sump capacity 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 silt material. Sedimentation pits shall be constructed at the corners of the garlands drains and desilted at regular intervals.

**Reply to Condition 7:** Garland drains & Parapet wall of appropriate size, gradient and length have been made around the active mining pits coupled with arrester to arrest silt from run-off and drains are being maintained. The drains are regularly desilted before the monsoon. The Water so collected are being used for green belt development and in sprinkling of the haul road. Sump of adequate capacity is also developed.

At present there is no active OB dump. Entire waste generated during mining operation is being simultaneously backfilled in the mined out pit. An old inactive OB dump has been stabilized by

vegetation. Garland drain is provided to arrest silt and sediments flows from above mentioned OB dump.



**Condition-8:** The project proponent shall ensure that no natural water course shall be obstructed due to mining operation.

**Reply to Condition 8:** We undertake that no natural water course is obstructed during mining operation.

**Condition-9:** Blasting operations shall be carried out only during the day time. Controlled blasting shall be practiced. The drills should be operated with drill extractors. The mitigative measures for control of ground vibrations and arrest fly rocks shall be implemented. Blasting scientific based on peak particle velocity, charge per delay and blast geometry shall be evolved for maximum production. The same shall be submitted to the Ministry within six months.

**Reply to Condition 9:** Controlled blasting is being practiced in the mine. Wet drilling Machines are being used during drilling operations. Nonel & effective blast design are used to control blast vibration and fly rocks. Blasting is carried out only in day hours.

**Condition-10:** Plantation shall be raised in an area of 40.84 ha including green belt of adequate width by planting native species around the ML area, roads; OB dump sites etc. in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Selection of plant species shall be as per CPCB guidelines. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation.

**Reply to Condition 10:** Total 86.564 Ha. have been afforested with native species till date. The plantation in reclaimed area has been carried out as per plan. The density is being maintained about 2500 plant per hectare with the species like Amla, mango, babul, pears, guava and Jamun. Moreover, plantation has been carried out over 5.628 ha. with 17110 saplings during this year. Social forestry is also being encouraged among the local villagers. Apart from that local food grain rice & Tau has been planted over the reclaimed area of 1.500 Ha. Year wise plantation is enclosed as *Annexure-C*.

**Condition-11:** 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.

**Reply to Condition 11:** Rain water harvesting structure (Ponds and Wells) of area 0.79 Ha., 0.69 Ha. and 5ft. x 10 ft.) has been constructed as conservation measures in mined out area for the

conservation/augmentation of ground water resources. Such measures also help in increasing the water credit of the Lease area.



RWH Pond & Recharge well

**Condition-12:** Regular water sprinkling shall be carried in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading, unloading and transfer points and other vulnerable areas. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard.

**Reply to Condition 12:** Regular water spraying with 12 KL water tanker in the mine lease hold area is being carried out regularly to control air pollution. The ambient air quality is within the stipulated norms.



Water Sprinkling in the Haul Road

**Condition-13:** Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year-pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.

**Reply to Condition 13:** The depth of our mining operation varies from 15-20m. Piezometer has been installed at strategic location within the lease area to monitor the Ground Water level and the average depth of which is 25 to 30m. The ground water table is below the depth of our mining operation. Hence there is no intersection of groundwater level during course of mining operation. Regular monitoring of ground water quality is being carried out. The analysis reports are being submitted to CECB, Raipur. Regular monitoring of ground water level is being carried out and is found below level of mining operation. The ground water Quality & GW level report is attached in *Annexure - D*.

**Condition-14:** Rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, CGWB.

**Reply to Condition 14:** Rainwater harvesting ponds/Recharge well has been made at lease hold area.

**Condition-15:** Prior permission from the competent authority shall be obtained for drawl of ground water, if any.

**Reply to Condition 15:** Ground water NOC has been obtained from the CGWA vide letter no. CGWA/NOC/MIN/REN/2/2023/7571, dated 03.04.2023 with validity up to 27.03.2025. This water is used for domestic purpose. We are not drawing ground water for industrial use, if required: the prior permission will be taken from competent authority. The GW NOC Copy is attached as **Annexure - E**.

**Condition-16:** Existing ecological status of the project area shall be conserved and protected. The project proponent should take all possible precautionary measures during mining operation for conservation and protection of endangered fauna.

**Reply to Condition 16:** All efforts are being taken to conserve and protect existing ecological status of the project area. We are taking important measures for conservation of flora and fauna are as follows.

- a) Company have been provided solar LED torch and florescent jacket to Staff of forest department, Ambikapur for patrolling and monitoring the movement of wildlife, encroachment, cutting, poaching, fire etc.
- b) Veterinary camp is being conducted for immunization of cattle with the help of block veterinary staff.
- c) Awareness programme related to wildlife conservation is being conducted.
- d) Eco-development activities like poultry, piggery, bee keeping etc. are being organized.
- e) Controlled blasting is being carried out so as reduce vibration and noise. Such operation is being carried out in day time only and its use is minimized.
- f) Plantation is regular activity.
- g) Fish farming with seeds of 5500 nos. has been done in water recharge pond.

**Condition-17:** 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 vehicles shall be covered with a tarpaulin and shall not be overloaded.

**Reply to Condition 17:** Regular and periodic maintenance of HEMM is being carried out for control of vehicular emission in mines area. The bauxite ore are transported in trucks with tarpaulin cover upto EUP/Railway siding. Vehicle used for transportation are having valid permit. No overloading of ores for transportation is allowed to prevent spillage of material.



**Condition-18:** Occupational health and safety measures for the workers including training on modern eradication, HIV and health effects on exposure to mineral dust etc. shall be carried out. The company shall engage a full time qualified doctor who is trained in occupational health surveillance and health record of the workers shall be maintained.

**Reply to Condition 18:** Company has provided with personal protective equipment to all workers and training are also being imparted to them for safety & health, sanitation, health awareness camps including HIV are being organized for all workmen. One doctor having MBBS qualification has been appointed for facilitation of OHS. We have undergone through initial & periodical test of all workers employed in the mines by the certified team. The records related to initial and periodical medical examination of all workmen is being maintained.



Job Specific Safety Training at VTC



Safety Awareness Programme at Site

**Condition-19:** 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.

**Reply to Condition 19:** We accept the condition. A progressive mine closure plan approved by IBM is in place. IBM is competent authority to approve the final mine closure plan. Based on the present resource estimate, and peak rated production capacity, the tentative balance life of mine is around 9.92 years. However, after completion of further detailed exploration programme and geological investigation, the balance life of mine is subject to change with respect to EC Capacity and cut –off grade of mineral at that particular time. Final Mine closure mine plan along with details of Corpus fund will be submitted within prescribed timelines in accordance with law to competent authority.

## **B. General Conditions**

**Condition-1:** No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.

**Reply to Condition 1:** Noted.

**Condition-2:** No change in the calendar plan including excavation, quantum of mineral bauxite ore shall be made.

**Reply to Condition 2:** Calendar plan (IBM Approved Mining Plan) prepared for the mine is being followed.

**Condition-3:** Conservation measures for protection of flora and fauna in the core and buffer zone shall be drawn up in consultation with the local forest and wildlife department.

**Reply to Condition 3:** The suggestions of local forest department are being implemented for conservation of flora and fauna in and around lease hold area. Important measure being implemented for conservation of flora and fauna are as follows.

- a) Company have been provided solar LED torch and florescent Jackets to Staff of forest department, Ambikapur for patrolling and monitoring the movement of wildlife ,encroachment, cutting ,poaching ,fire etc.
- b) Veterinary camp is being conducted for immunization of cattle with the help of block veterinary staff.
- c) Awareness programme related to wildlife conservation is being conducted.
- d) Eco-development activities like poultry, piggery, bee keeping etc. are being organized.

**Condition-4:** Four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for RPM, SPM, SO<sub>2</sub>, NO<sub>x</sub>, 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.

**Reply to Condition 4:** Ambient Air quality monitoring is being carried out as per guideline and is being followed.

For this, We have already appointed NABL accredited laboratory M/s. Anacon Laboratories Pvt. Ltd. for conducting regular environmental monitoring. The Summery of Ambient air quality report (from October- 22 to March -23) is enclosed as **Annexure-F**.

**Condition-5:** Data on ambient air quality (RPM, SPM, SO<sub>2</sub>, and NO<sub>x</sub>) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.

**Reply to Condition 5:** Data of ambient air quality (RPM, SPM, SO<sub>2</sub>, and NO<sub>x</sub>) are being submitted to CECB and are being submitted to other regulatory authorities as per guidelines. Data of ambient air quality (RPM, SPM, SO<sub>2</sub> and NO<sub>x</sub>) from October- 22 to March- 23 is enclosed as **Annexure-F**.

**Condition-6:** Fugitive dust emission from all the sources shall be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.

**Reply to Condition 6:** Fugitive dust emission from generating sources is being controlled. The dust extractor, wet drilling, regular water spraying with 12 KL portable water tanker in the mine lease hold area is being carried out regularly. Rainwater collected into the mine pit is being utilized for dust suppression purpose. Black top road has been constructed up to pit head to reduce dust problem.



Black top Road towards the mines and Water Sprinkling in the Haul Road



**EC Compliance for Tatijharia Bauxite Mine (Mine Lease Area of 1218.762 Ha), Tehsil - Kusmi, District - Balrampur-Ramanujanj, State - Chhattisgarh**

**M/s. Hindalco Industries Limited Compliance Period: October - 2022 - March - 2023**

**Condition-7:** Measures shall be taken for control of noise levels below 85dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.

**Reply to Condition 7:** The noise level in working area is being maintained below the prescribed limit. As protective measures, Workers engaged in operations of HEMM, etc. is being provided with ear plugs / muffs. The proper maintenance of HEMM is being carried out to control noise emission.

**Condition-8:** Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.

**Reply to Condition 8:** There is no waste water generated from the mining operation. For the waste water generated from workshop, oil and grease separation pits are provided and the treated water is being used for dust suppression in haul road.

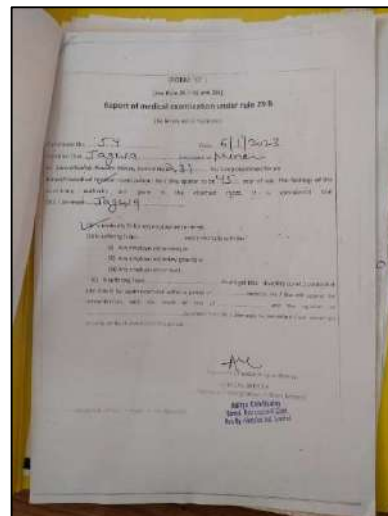
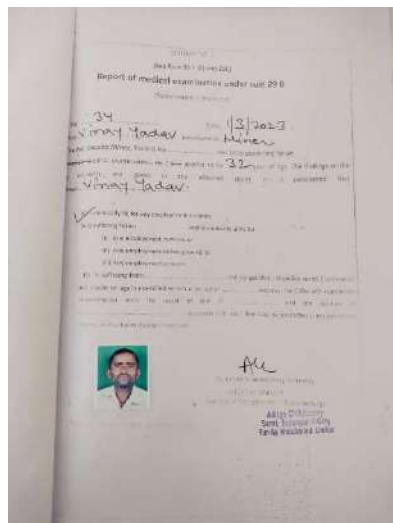
**Condition-9:** Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.

**Reply to Condition 9:** Company has provided adequate personal protective equipment to all workers and it is also ensured that they use the same. Regular awareness training are also being imparted to them for safety & health in our Group vocational training center- Samri is being continued as per guidelines.

All employees undergo Lung Function Tests during the Medical Examination. Periodical Medical Examination of employees and contractor workers are organized regularly to observe any contractions due to exposure to dust and other occupational hazards.

**Condition-10:** Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

**Reply to Condition 10:** Periodical and Initial medical examination of all workers are being carried out as per provision of Mines Act.



**Condition-11:** A separate environmental management cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

**Reply to Condition 11:** Environment cell is already in place at Samri Mines Division headed by Head (Mines) and comprises of suitable qualified persons. Constitution of Environment Management cell is enclosed in *Annexure-G*.

**Condition-12:** The project authorities shall inform to the Regional Office located at Bhopal regarding of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

**Reply to Condition 12:** Financial closure plan not applicable as it is an operational mines.

**Condition-13:** The funds earmarked for environmental protection measures shall be kept in separate account and should not be diverted for other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bhopal.

**Reply to Condition 13:** Adequate fund provision is already earmarked for environmental protection measures and will not be diverted to other purpose. The year wise expenditure is being submitted to concern authorities as per guidelines. The copy of environment expenditure is enclosed as *Annexure I*.

**Condition-14:** The project authorities shall inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development.

**Reply to Condition 14:** Financial closure plan not applicable as it is an operational mine.

**Condition-15:** The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/information/ monitoring reports.

**Reply to Condition 15:** All cooperation is being extended to regulatory authorities.

**Condition-16:** A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.

**Reply to Condition 16:** We have forwarded the copy of clearance letter to Panchayat in our area. The copy of same has already been submitted to your good office.

**Condition-17:** State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/Tehsildar's office for 30 days.

**Reply to Condition 17:** The copy has been displayed by CECB in Surguja Collectorate.

**Condition-18:** 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 and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic> and a copy of the same shall be forwarded to the Regional Office of this Ministry located Bhopal.

**Reply to Condition 18:** The information regarding environment clearance has been published in two local newspaper Hari Bhumi & Ambika Vani. The copy of same has been already submitted to your good office. News paper clip is attached in *Annexure -H*.

**Condition-19:** The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

**Reply to Condition 19:** Noted.

**Condition-20:** Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

**Reply to Condition 20:** Noted.

**Condition-21:** The above conditions shall be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

**Reply to Condition 21:** Noted.

Hope the above compliance will be found in order.

Yours truly,

(For Hindalco Industries Limited)

  
(Vijay Chauhan)

Agent of Mines

**Agent of Mines**  
Samm Mines Division  
Hindalco Industries Ltd

Encl.: As above

कार्यालय वन्य प्राणी संरक्षण (वन्यप्राणी प्रबंधन एवं जीव विविधता  
संरक्षण सह मुख्य वन्यप्राणी अभिरक्षक), छत्तीसगढ़  
अरण्य भवन, मेडिकल कॉलेज रोड, रायपुर

ईमेल - pccfwl@nsrf.com

IPN 0771-2552228, Fax (0771-2552227)

क्रमांक/व.प्र./प्रबंध- 12/13/2767

रायपुर दिनांक 07/10/2013

प्रति,

संचालक,  
इन्वायरनमेंट क्लीयरेंस सेल  
भारत सरकार, वन एवं पर्यावरण मंत्रालय,  
पर्यावरण भवन, सी.जी.ओ. कॉम्प्लेक्स,  
लोधी रोड, नई दिल्ली-111003

विषय :- छत्तीसगढ़ के बलरामपुर जिले (तत्कालीन सरगुजा जिला) में स्थित सामरी बॉक्साइट  
माईन्स, कुदाग बॉक्साइट माईन्स एवं टाटीझरिया बॉक्साइट माईन्स की क्षमता बढ़ाये हेतु  
इन्वायरनमेंट क्लीयरेंस।

- संदर्भ:- 1. पर्यावरण व वन मंत्रालय, भारत सरकार का पत्र क्रमांक J-11015/353/2007-IA.II(M) दिनांक  
27 जुलाई 2007.  
2. पर्यावरण व वन मंत्रालय, भारत सरकार का पत्र क्रमांक J-11015/337/2007-IA.II(M) दिनांक  
27 जुलाई 2007.  
3. पर्यावरण व वन मंत्रालय, भारत सरकार का पत्र क्रमांक J-11015/337/2007-IA.II(M) दिनांक  
9 अगस्त 2007.

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कृपया आपके उपरोक्त संदर्भित पत्रों का अवलोकन करने का कष्ट करें। जिसके द्वारा बलरामपुर जिले  
(पुराने सरगुजा जिले) के सामरी बॉक्साइट खुली खदान (1 LTPA) की क्षमता बढ़ाकर (SLTPA) करने, कुदाग बॉक्साइट  
खदान (0.4 LTPA) की क्षमता बढ़ाकर (0.6 LTPA) करने तथा टाटीझरिया बॉक्साइट खदान (0.5 TPA) की क्षमता बढ़ाकर  
(4 TPA) करने के परियोजना प्रस्ताव के संबंध में वन्य प्राणी (संरक्षण) अधिनियम, 1972 के तहत अनुसूची-1 के वन्यप्राणियों  
हेतु "वन्य प्राणी संरक्षण व प्रबंधन योजना" तैयार की जाकर इस कार्यालय की सहमति दिये जाने का लेख किया है।

1. विषयांकित परियोजना हेतु खदान के लीज के अनुबंध दिसंबर 1996 एवं जून 1998 में हस्ताक्षरित  
हुये थे। सामरी क्षेत्र में भारत सरकार पर्यावरण व वन मंत्रालय के आदेश क्रमांक J-11015/353/2007-  
IA.II/M दिनांक 27 जुलाई, 2007 द्वारा 2146.746 हे. में, कुदाग क्षेत्र में भारत सरकार पर्यावरण व वन  
मंत्रालय आदेश क्रमांक J-11015/354/2007-IA.II/M दिनांक 27 जुलाई 2007 द्वारा 377.116 हे. में, तथा  
टाटीझरिया में भारत सरकार पर्यावरण व वन मंत्रालय के आदेश क्रमांक J-11015/337/2007-IA.II/M  
दिनांक 9 अगस्त 2007 द्वारा 1218.762 हे. में बॉक्साइट खनन की स्वीकृति प्राप्त कर संस्था द्वारा खनन  
का कार्य किया जा रहा है।

2. वर्तमान प्रस्ताव में उपरोक्त क्षेत्रों में वन्य प्राणी संरक्षण के लिए 1.0 LPTA से बढ़ाकर 5.0 LPTA किया जाना, कुदांग के लिए 0.1 LPTA से बढ़ाकर 0.5 LPTA किया जाना एवं तटीय क्षेत्रों के लिए 50,000 TPA से बढ़ाकर 4,00,000 TPA किया जाना प्रस्तावित है। भारत सरकार पर्यावरण व वन मंत्रालय के द्वारा उपरोक्त क्षेत्रों में वन्य प्राणी संरक्षण की स्वीकृति क्रमशः आदेश क्रमांक J-11015/353/2007-IA.II/M दिनांक 27 जुलाई 2007, J-11015/354/2007-IA.II/M दिनांक 27 जुलाई 2007 एवं J-11015/337/2007-IA.II/M दिनांक 9 अगस्त 2007 द्वारा कुछ शर्तों के साथ दी गई है, जिसमें एक महत्वपूर्ण शर्त यह भी उल्लेखित है कि संबंधित क्षेत्र में वन्य प्राणी (संरक्षण) अधिनियम के शेड्यूल 1 के पाये जाने वाले वन्य प्राणियों के संरक्षण हेतु प्रबंध योजना तैयार की जाकर राज्य के मुख्य वन्य जीव अभिरक्षक के अभिमत सहित प्रस्तुत किया जाये। जिसके पालन में संस्था द्वारा एक वन्य प्राणी संरक्षण योजना तैयार की गयी है।
3. खनन क्षमता बढ़ाने से संबंधित प्रस्तावित तीनों ही परियोजनाओं के एक दूसरे से 4 कि.मी. की परिधि में स्थित होने एवं सभी के बफर क्षेत्र ओवरलैपिंग होने के कारण सभी के लिये संयुक्त रूप से वन्य प्राणी संरक्षण व प्रबंधन योजना तैयार की जाकर महाप्रबंधक, (खादान), हिन्डालको इन्डस्ट्रीज के पत्र क्रमांक HIL/SAM/300/2013 दिनांक 2.03.2013 द्वारा प्रस्तुत किया गया है जिसका समग्र रूप से परीक्षण किया गया। प्रस्तावित परियोजनाओं के कोर क्षेत्र से 10 कि.मी. की परिधि में आने वाले ओवरलैपिंग बफर क्षेत्र में वन्य प्राणियों एवं उपलब्ध वनस्पतियों का सर्वे किया जाकर पाये गये स्पेसिज को परियोजना प्रस्ताव में अनेक्स-4 के में उल्लेखित किया गया है।
4. उल्लेखित सूची में वन्य प्राणी (संरक्षण) अधिनियम के शेड्यूल 1 के वन्य प्राणी नहीं पाये गये हैं। परंतु इस कार्यालय द्वारा वन संरक्षक (वन्य प्राणी), सरगुजा से विगत दस वर्षों में वन्य प्राणियों द्वारा की गई क्षति की जानकारी चाही गयी। वन संरक्षक ने अपने पत्र क्रमांक 749 दिनांक 24.05.2012 से यह जानकारी उपलब्ध कराया है कि उक्त क्षेत्र में हाथियों का वर्ष 2005 में दो बार, वर्ष 2006 में आठ बार, 2007 में एक बार, 2008 में दो बार, 2009 में सात बार आना जाना हुआ है। इसी प्रकार भालुओं के द्वारा वर्ष 2007-08 में आठ, वर्ष 2008-09 में पाँच, वर्ष 2009-10 में छः एवं 2010-11 में 4 जनहानि व जनघायल के प्रकरण तथा वर्ष 2007-08 तथा 2008-09 में तेंदुआ द्वारा पशु हानि के दो प्रकरण तथा लकड़बग्घे के कारण एक प्रकरण दर्ज किये गये हैं। इस प्रकार वन्य प्राणी (संरक्षण) अधिनियम के शेड्यूल 1 के उपरोक्त उल्लेखित वन्य प्राणियों के परियोजना क्षेत्र में आने जाने के प्रमाण पाये गये हैं। प्रस्तावित क्षेत्र से 6 से 7 कि.मी.की दूरी पर झारखंड राज्य में भेंड़िया अभ्यारण्य भी स्थापित है। अतः संस्था द्वारा दस वर्षों के लिये वन्य प्राणी संरक्षण व प्रबंध योजना श्री पी. के. सेन पूर्व वन्य प्राणी अभिरक्षक, झारखंड से तैयार कराया जाकर प्रस्तुत किया गया है। जिसका समग्र व विस्तृत अध्ययन किया गया। प्रबंधन योजना में प्रस्तावित प्रबंधन संबंधित मुख्य गतिविधियों का विवरण निम्नानुसार है।
5. योजना में वन्य प्राणियों के लिये जलग्रहण क्षेत्र विकास, रहवास-विकास, पेयजल व्यवस्था, विभाग के क्षेत्रीय अमले के सहयोग से क्षेत्र में पेट्रोलिंग व मॉनिटरिंग, अग्नि सुरक्षा, ईको विकास की गतिविधियों, स्थानीय ग्रामीणों के लिये आजीविका सृजन, टीकाकरण, जनजागृति कार्यक्रम जैसी गतिविधियों का

समावेश करते हुये 04 वर्षों के लिए प्रथम वर्ष का प्रारंभिक अनुमानित की गयी है। जिसका क्रियान्वयन वन विभाग के द्वारा किया जायेगा। प्रस्तावित पाठ्यक्रम का विवरण निम्नांकित है -

Sr. No.	Works to be done	Cost for Four years (Rs. in lakhs)					Remarks
		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	Total	
1	Plantation including soil and moisture Conservation works as per norms of forest department surrounding the lease hold	5.00	5.00	5.00	5.00	20.00	
2	Silvicultural Operation on degraded forest Land and cut back in rooted waste	2.00	2.00	2.00	2.00	8.00	
3	Habitat Management Eradication of unwanted species in buffer Zone area, Fire Protection work including wages for fire watchman, Creation of Fire line etc. surrounding lease hold and in buffer area.	2.50	2.50	2.50	2.50	10.00	
4	Monitoring - One Staff of forest department to monitor movement of wild life, encroachment, illicit cutting, poaching, fire etc. including Salary of 1 staff	3.00	3.00	3.00	3.00	12.00	
5	Construction of water holes, their maintenance and patrolling (One per Annum)	10.00	10.00	10.00	10.00	40.00	
6	Eco-development activities like poultry, piggery, bee keeping etc.	5.00	5.00	5.00	5.00	20.00	
7	Vocational Training to weaker section, females, old persons and minors of the surrounding villages in three centre in the buffer Zone of the mining lease @ 50000/- per centre.	3.00	3.00	3.00	3.00	12.00	
8	Veterinary camp for immunization of Cattle with the help of block veterinary staff.	2.00	2.00	2.00	2.00	8.00	
9	Awareness Programme including Signages, distribution of Pamphlets related to wild life conservation etc.	2.50	2.50	2.50	2.50	10.00	
10	Provision for conservation of Biodiversity among flora and fauna of the area & Preparation of Biodiversity register	20.00	0.00	0.00	0.00	20.00	The amount is to be deposited in the account of Biodiversity Board as this work is to be done by Biodiversity management committees (BMC's)
<b>Total</b>		<b>55.00</b>	<b>35.00</b>	<b>35.00</b>	<b>35.00</b>	<b>160.00</b>	

जन्म की लागत रु. 160.00 लाख की अनुमानित है। परियोजना के क्रियान्वयन के समय जो भी लागत आयगी वह विभाग के अडेक्स के हिसाब से वृद्धि होगी। परियोजना के क्रियान्वयन के समय जो भी लागत आयगी वह परियोजना प्रस्तावकों को वन विभाग में एकमुश्त जमा करानी होगी। जिससे मुख्य वृद्धि के प्रभाव को समाप्त किया जा सके। वन विभाग एकमुश्त जमा की गई राशि से वन्यप्राणी संरक्षण योजना क्रियान्वित करेगा।

7. अनुमोदित वन्यप्राणी संरक्षण योजना की एक प्रति संलग्न प्रेषित है। कृपया वन्यप्राणी संरक्षण योजना में प्रावधानित राशि रु. 160.00 लाख एकमुश्त जमा कराने हेतु परियोजना प्रस्तावकों को आदेशित करने का कष्ट करें।

संलग्न:-उपरोक्तानुसार।

*Aprakash*  
(रामप्रकाश) 07/10/13

प्रधान मुख्य वन संरक्षक (वन्यप्राणी)  
छत्तीसगढ़, रायपुर

रायपुर दिनांक 07/10/2013

पृष्ठा क्रमांक/व.प्रा./प्रबंध-12/13/2968.

प्रतिलिपि :-

1. प्रमुख सचिव, छत्तीसगढ़ शासन, वन विभाग, महानदी मंत्रालय भवन, नया रायपुर की ओर मय योजना की प्रति सहित सूचनार्थ प्रेषित।
2. श्री एम. के. नार्यंक, जी. एम. माइन्स हिन्डालको इन्डस्ट्रीज लिमिटेड, सामरी बॉक्साईट माइन्स, पोस्ट-कुसमी, जिला-सरगुजा, छत्तीसगढ़ की ओर मय योजना की प्रति सहित सूचनार्थ प्रेषित।

*Aprakash*  
प्रधान मुख्य वन संरक्षक (वन्यप्राणी) 07/10/13  
छत्तीसगढ़, रायपुर

TATIJHARIA BAUXITE MINE

  
Agent of Mines  
Samri Mines Division  
Hindalco Industries Ltd

Annexure B

Annexure-6  
Details of Flora and Fauna

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समावेश करते हुये 04 वर्षों के लिए प्रस्तावित कार्य प्रस्तावित व्यय अनुमानित की गयी है। जिसका क्रियान्वयन वन विभाग के द्वारा किया जायेगा। प्रस्तावित पाठ्यक्रम का विवरण निम्नांकित है -

Sr. No.	Works to be done	Cost for Four years (Rs. in lakhs)					Remarks
		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	Total	
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<b>Total</b>		<b>55.00</b>	<b>35.00</b>	<b>35.00</b>	<b>35.00</b>	<b>160.00</b>	

**ANNEXURE-6**  
**DETAILS OF FLORA & FAUNA**

**TABLE-1**  
**DETAILS OF DOMINANT PLANT SPECIES IN MINE LEASE AREA (CORE ZONE)**

Name of the plant Species	Local Name	Family
<i>Butea monosperma</i>	Palas	Fabaceae
<i>Acacia Arabica</i>	Babul	Mimosaceae
<i>Leucena leucophloe</i>	Sabulal	Mimosaceae
<i>Mangifera indica</i>	Aam	Anacardiaceae
<i>Citrus lemon</i>	Nimbu	Rutaceae
<i>Emblica officinalis</i>	Amia	Euphorbiaceae
<i>Ficus hispida</i>	Jungli anjir	Moraceae
<i>Spondias cythera</i>	Kathjamun	Myrtaceae
<i>Terminalia catapa</i>	Badam	Combretaceae
<i>Apluda mutica</i>	Grass	Poaceae
<i>Chloris dolichosta</i>	Grass	Poaceae
<i>Dichanthium annulatum</i>	Grass	Poaceae
<i>Inpurta cylendrica</i>	Grass	Poaceae
<i>Themeda quadrivalvis</i>	Grass	Poaceae
<i>Aristida adscensionsis</i>	Grass	Poaceae
<i>Eragrostis bifera</i>	Grass	Poaceae
<i>Eragrostis tenella</i>	Grass	Poaceae
<i>Setaria glauca</i>	Grass	Cyperaceae
<i>Hyssanolaena maxima</i>	Grass	Graminae
<i>Parthenium hysterophorus</i>	Congress grass	Compositae
<i>Cassia tora</i>	-	Caesalpinaceae
<i>Delonix regia</i>	Kachnar	Caesalpinaceae
<i>Dalbergia Sissoo</i>	Sisoo	Caesalpinaceae

**TABLE-2**  
**FLORA/VEGETATION IN STUDY AREA (BUFFER ZONE)**

Sr. No.	Technical Name	Family	Life Form
<b>I. Agricultural Crops</b>			
1	<i>Hordium vulgare</i>	Poaceae	Hemicryptophyte
2	<i>Sorghum vulgare</i>	Poaceae	Hemicryptophyte
3	<i>Triticum vulgare</i>	Poaceae	Hemicryptophyte
4	<i>Zea mays</i>	Poaceae	Hemicryptophyte
5	<i>Oryza sativa</i>	Poaceae	Hemicryptophyte
6	<i>Pennisetum typhoideum</i>	Poaceae	Hemicryptophyte
<b>II. Commercial Crops (including Vegetables)</b>			
7	<i>Abelmoschus indicus</i>	Malvaceae	Therophyte
8	<i>Allium cepa</i>	Liliaceae	Geophyte
9	<i>Allium sativum</i>	Liliaceae	Geophyte
10	<i>Annona squamosa</i>	Annonaceae	Phanerophyte
11	<i>Arachis hypogia</i>	Fabaceae	Geophyte
12	<i>Citharanthes pusillus</i>	Compositae	Therophyte
13	<i>Cicer arietinum</i>	Fabaceae	Hemicryptophyte
14	<i>Citrus lemon</i>	Rutaceae	Therophyte
15	<i>Colocasia esculenta</i>	Areaceae	Geophyte
16	<i>Coreandrum sativum</i>	Umbelliferae	Hemicryptophyte
17	<i>Daucus carota</i>	Umbelliferae	Geophyte
18	<i>Lycopersicum esculentus</i>	Solanaceae	Therophyte
19	<i>Mangifera indica</i>	Anacardiaceae	Phanerophyte
20	<i>Momordia charantia</i>	Cucurbitaceae	Therophyte
21	<i>Pisum sativum</i>	Fabaceae	Therophyte
22	<i>Psidium guava</i>	Myrtaceae	Phanerophyte
23	<i>Solanum tuberosum</i>	Solanaceae	Geophyte
24	<i>Litchi chinensis</i>	Sapindaceae	Phanerophyte
<b>III. Plantations</b>			
25	<i>Bauhinia cormbosa</i>	Caesalpinaceae	Phanerophyte
26	<i>Acacia nilotica</i>	Mimosaceae	Phanerophyte
27	<i>Albizia lebbeck</i>	Mimosaceae	Phanerophyte
28	<i>Albizia odorattissima</i>	Mimosaceae	Phanerophyte
29	<i>Albizia procera</i>	Mimosaceae	Phanerophyte

Sr. No.	Technical Name	Family	Life Form
30	<i>Azadirachta indica</i>	Meliaceae	Phanerophyte
31	<i>Bauhinia variegata</i>	Caesalpinaceae	Phanerophyte
32	<i>Bauhinia purpuria</i>	Caesalpinaceae	Phanerophyte
33	<i>Bambusa arundanaceae</i>	Poaceae	Phanerophyte
34	<i>Butea monosperma</i>	Caesalpinaceae	Phanerophyte
35	<i>Butea frondosa</i>	Caesalpinaceae	Phanerophyte
36	<i>Eucalyptus sp</i>	Myrtaceae	Phanerophyte
37	<i>Delonix regia</i>	Caesalpinaceae	Phanerophyte
38	<i>Leucena leucophloe</i>	Caesalpinaceae	Phanerophyte
<b>IV. Natural Vegetation/Forest Type</b>			
39	<i>Abrus precatorius</i>	Fabaceae	Therophyte
40	<i>Abutilon indicum</i>	Malvaceae	Phanerophyte
41	<i>Acacia Arabica</i>	Mimosaceae	Phanerophyte
42	<i>Acacia auriculiformis</i>	Mimosaceae	Phanerophyte
43	<i>Acacia catechu</i>	Mimosaceae	Phanerophyte
44	<i>Acacia intinsia</i>	Mimosaceae	Phanerophyte
45	<i>Acacia fernacea</i>	Mimosaceae	Phanerophyte
46	<i>Acacia leucophloe</i>	Mimosaceae	Phanerophyte
47	<i>Acalypha lanceolata</i>	Mimosaceae	Phanerophyte
48	<i>Acanthospermum hispidum</i>	Euphorbiaceae	Therophyte
49	<i>Achyranthes aspera</i>	Compositae	Therophyte
50	<i>Adathoda vasica</i>	Amaranthaceae	Therophyte
51	<i>Adina cordifolia</i>	Acanthaceae	Therophyte
52	<i>Aegle marmelos</i>	Rubiaceae	Phanerophyte
53	<i>Aerva lanata</i>	Rutaceae	Phanerophyte
54	<i>Ageratum conyzoides</i>	Compositae	Phanerophyte
55	<i>Ailanthus excelsa</i>	Compositae	Therophyte
56	<i>Alangium salivus</i>	Simaroubaceae	Phanerophyte
57	<i>Albizia odoratissima</i>	Alangiceae	Phanerophyte
58	<i>Albizia procera</i>	Caesalpinaceae	Phanerophyte
59	<i>Alstonia scholaris</i>	Caesalpinaceae	Phanerophyte
60	<i>Alternanthera sessilis</i>	Apocyanaceae	Phanerophyte
61	<i>Alysicarpus hamosus</i>	Amaranthaceae	Therophyte
62	<i>Anogeissus latifolia</i>	Fabaceae	Therophyte
63	<i>Anogeissus serica</i>	Combretaceae	Phanerophyte
64	<i>Argemone mexicana</i>	Combretaceae	Phanerophyte
65	<i>Azadirachta indica</i>	Papevaraceae	Phanerophyte
66	<i>Barleria prionites</i>	Meliaceae	Phanerophyte
67	<i>Bidens biternata</i>	Acanthaceae	Therophyte
68	<i>Blepharis asperima</i>	Compositae	Therophyte
69	<i>Blepharis madaraspatens</i>	Acanthaceae	Phanerophyte
70	<i>Blumea lacera</i>	Acanthaceae	Therophyte
71	<i>Boerheavia chinensis</i>	Compositae	Therophyte
72	<i>Boerheavia diffusa</i>	Nycataginaceae	Therophyte
73	<i>Bombax ceiba</i>	Nyctaginaceae	Therophyte
74	<i>Borreria hispida</i>	Bombacaceae	Phanerophyte
75	<i>Borreria stricta</i>	Rubiaceae	Therophyte
76	<i>Boswellia serrata</i>	Rubiaceae	Therophyte
77	<i>Brassica campestris</i>	Burseraceae	Phanerophyte
78	<i>Bridelia retusa</i>	Cruciferae	Therophyte
79	<i>Bridelia superba</i>	Euphorbiaceae	Phanerophyte
80	<i>Caesalpina pulcherima</i>	Euphorbiaceae	Phanerophyte
81	<i>Calotropis procera</i>	Caesalpinaceae	Phanerophyte
82	<i>Canthium diddynam</i>	Asclpiadaceae	Phanerophyte
83	<i>Capparis aphylla</i>	Rubiaceae	Phanerophyte
84	<i>Capparis deciduas</i>	Capparidaceae	Phanerophyte
85	<i>Carissa carandus</i>	Capparidaceae	Therophyte
86	<i>Carissa spinarium</i>	Apocyanaceae	Phanerophyte
87	<i>Casuarina graveolens</i>	Apocyanaceae	Phanerophyte
88	<i>Cassia absus</i>	Samydiaceae	Phanerophyte
89	<i>Cassia absus</i>	Caesalpinaceae	Phanerophyte
90	<i>Cassia auriculata</i>	Caesalpinaceae	Phanerophyte
91	<i>Cassia occidentalis</i>	Caesalpinaceae	Therophyte
92	<i>Cassia tora</i>	Caesalpinaceae	Therophyte
93	<i>Cestrum diurnum</i>	Caesalpinaceae	Therophyte
94	<i>Cestrum nocturnum</i>	Rubiaceae	Phanerophyte
		Rubiaceae	Therophyte

Sr. No.	Technical Name	Family	Life Form
95	<i>Chloris variegata</i>	Poaceae	Therophyte
96	<i>Cissus quadrangularis</i>	Vitaceae	Therophyte
97	<i>Citrus limon</i>	Rutaceae	Phanerophyte
98	<i>Cleome gynandra</i>	Capparidaceae	Therophyte
99	<i>Combretum ovalifolium</i>	Rubiaceae	Phanerophyte
100	<i>Cordia myxa</i>	Rubiaceae	Phanerophyte
101	<i>Crotalaria medicagenia</i>	Fabaceae	Therophyte
102	<i>Croton bonplandinum</i>	Amaryllidaceae	Therophyte
103	<i>Cuscuta reflexa</i>	Cuscutaceae	Epiphyte
104	<i>Datura fastulosa</i>	Solanaceae	Therophyte
105	<i>Datura metal</i>	Solanaceae	Therophyte
106	<i>Desmodium triflorum</i>	Asclepiadaceae	Therophyte
107	<i>Diospyros melanoxylon</i>	Lythraceae	Phanerophyte
108	<i>Diospyros Montana</i>	Lythraceae	Phanerophyte
109	<i>Echinops echinatus</i>	Compositae	Therophyte
110	<i>Eclipta prostrate</i>	Compositae	Hemicryptophyte
111	<i>Emblica officinale</i>	Euphorbiaceae	Phanerophyte
112	<i>Emilia lajerium</i>	Compositae	Hemicryptophyte
113	<i>Erythrina indica</i>	Papilionaceae	Phanerophyte
114	<i>Euphorbia geniculata</i>	Euphorbiaceae	Therophyte
115	<i>Euphorbia hirta</i>	Euphorbiaceae	Therophyte
116	<i>Euphorbia hyperocifolia</i>	Euphorbiaceae	Therophyte
117	<i>Euphorbia neruri</i>	Euphorbiaceae	Therophyte
118	<i>Euphorbia nivula</i>	Euphorbiaceae	Therophyte
119	<i>Euphorbia piluliflora</i>	Euphorbiaceae	Hemicryptophyte
120	<i>Euphorbia tricauli</i>	Euphorbiaceae	Hemicryptophyte
121	<i>Evolvulus alsinoides</i>	Convolvulaceae	Therophyte
122	<i>Evolvulus numularis</i>	Convolvulaceae	Therophyte
123	<i>Feronia elephantum</i>	Rutaceae	Phanerophyte
124	<i>Ficus benghalensis</i>	Moraceae	Phanerophyte
125	<i>Ficus carica</i>	Moraceae	Phanerophyte
126	<i>Ficus glomerata</i>	Moraceae	Phanerophyte
127	<i>Ficus hispida</i>	Moraceae	Phanerophyte
128	<i>Ficus racemosus</i>	Moraceae	Phanerophyte
129	<i>Ficus religiosa</i>	Moraceae	Phanerophyte
130	<i>Ficus gibbosa</i>	Moraceae	Phanerophyte
131	<i>Gardenia latifolia</i>	Rubiaceae	Phanerophyte
132	<i>Gardenia lucida</i>	Rubiaceae	Phanerophyte
133	<i>Garuga pinnata</i>	Burseraceae	Phanerophyte
134	<i>Glossocardia bosvellia</i>	Compositae	Hemicryptophyte
135	<i>Gmelina arborea</i>	Rubiaceae	Phanerophyte
136	<i>Gomphrena globosa</i>	Amaranthaceae	Therophyte
137	<i>Gossypium herbaceum</i>	Malvaceae	Therophyte
138	<i>Grewia abutilifolia</i>	Tiliaceae	Phanerophyte
139	<i>Grewia salivifolia</i>	Tiliaceae	Phanerophyte
140	<i>Grewia subinaqualis</i>	Tiliaceae	Phanerophyte
141	<i>Gynandropis gynandra</i>	Capparidaceae	Hemicryptophyte
142	<i>Helictis isora</i>	Rubiaceae	Phanerophyte
143	<i>Heliotropium indicum</i>	Rubiaceae	Hemicryptophyte
144	<i>Heliotropium ovalifolium</i>	Rubiaceae	Hemicryptophyte
145	<i>Hemidesmus indicus</i>	Asclepiadaceae	Phanerophyte
146	<i>Hibiscus caesus</i>	Malvaceae	Hemicryptophyte
147	<i>Holarrhena antidycenterica</i>	Asclepiadaceae	Phanerophyte
148	<i>Holostemma annularia</i>	Asclepiadaceae	Phanerophyte
149	<i>Hygrophylla auriculata</i>	Acanthaceae	Hemicryptophyte
150	<i>Hyptis suavealens</i>	Labiatae	Therophyte
151	<i>Ichnocarpus frutens</i>	Poaceae	Hemicryptophyte
152	<i>Impatiens balasamania</i>	Balsaminaceae	Therophyte
153	<i>Indigofera hirsute</i>	Caesalpinaceae	Therophyte
154	<i>Indigofera limnacea</i>	Caesalpinaceae	Therophyte
155	<i>Indigofera tinctoria</i>	Caesalpinaceae	Therophyte
156	<i>Ipomea aquatica</i>	Convolvulaceae	Hydrophyte
157	<i>Ipomea coccinea</i>	Convolvulaceae	Therophyte
158	<i>Ipomea tuba</i>	Convolvulaceae	Hemicryptophyte
159	<i>Ixora arborea</i>	Rubiaceae	Phanerophyte
160	<i>Ixora parviflora</i>	Rubiaceae	Phanerophyte

Sr. No.	Technical Name	Family	Life Form
161	<i>Ixora singapuriensis</i>	Rubiaceae	Phanerophyte
162	<i>Jasminum arborens</i>	Oleaceae	Phanerophyte
163	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Therophyte
164	<i>Jussiaea suffruticosa</i>	Onagraceae	Hydrophyte
165	<i>Justia diffusa</i>	Acanthaceae	Therophyte
166	<i>Justicia diffusa</i>	Acanthaceae	Therophyte
167	<i>Lactuca punctata</i>	Compositae	Therophyte
168	<i>Lannea coramandalica</i>	Anacardiaceae	Phanerophyte
169	<i>Lannea grandis</i>	Anacardiaceae	Phanerophyte
170	<i>Lannea procumbens</i>	Anacardiaceae	Therophyte
171	<i>Lantana camara</i>	Verbinaceae	Phanerophyte
172	<i>Lawsonia inermis</i>	Lythraceae	Phanerophyte
173	<i>Lepidogathis cristata</i>	Acanthaceae	Therophyte
174	<i>Leptodenia reticulata</i>	Asclepiadaceae	Phanerophyte
175	<i>Leucas aspera</i>	Labiatae	Therophyte
176	<i>Leucas longifolia</i>	Labiatae	Therophyte
177	<i>Leucas longifolia</i>	Labiatae	Therophyte
178	<i>Leucena leucophloe</i>	Caesalpinaceae	Phanerophyte
179	<i>Linderbergia indica</i>	Scrophulariaceae	Therophyte
180	<i>Lindernbergia ciliate</i>	Scrophulariaceae	Therophyte
181	<i>Lophophora tridinatus</i>	Scrophulariaceae	Geophyte
182	<i>Luffa acutangularia</i>	Cucurbitaceae	Therophyte
183	<i>Lycopersicum esculentus</i>	Solanaceae	Therophyte
184	<i>Madhuca latifolia</i>	Sapotaceae	Phanerophyte
185	<i>Mallotus philippinus</i>	Euphorbiaceae	Phanerophyte
186	<i>Malvastrum coramandalicum</i>	Malvaceae	Therophyte
187	<i>Mangifera indica</i>	Anacardiaceae	Phanerophyte
188	<i>Marselia quadrifolia</i>	Marseliaceae	Phanerophyte
189	<i>Melia azadirachta</i>	Meliaceae	Phanerophyte
190	<i>Memordica diocea</i>	Cucurbitaceae	Therophyte
191	<i>Merremia emerginata</i>	Convolvulaceae	Therophyte
192	<i>Michaelia champaca</i>	Annonaceae	Phanerophyte
193	<i>Millingtonia harten</i>	Bignoniaceae	Phanerophyte
194	<i>Mimosa hamata</i>	Mimosaceae	Therophyte
195	<i>Mitragyna parviflora</i>	Rubiaceae	Phanerophyte
196	<i>Mollugo cerviana</i>	Aizoaceae	Therophyte
197	<i>Mollugo hirta</i>	Aizoaceae	Therophyte
198	<i>Moringa oleifera</i>	Moringaceae	Phanerophyte
199	<i>Morus alba</i>	Moraceae	Phanerophyte
200	<i>Mucuna prurita</i>	Papilionaceae	Hemicryptophyte
201	<i>Murraya exotica</i>	Rutaceae	Phanerophyte
202	<i>Murraya koenigii</i>	Rutaceae	Phanerophyte
203	<i>Musa paradisiaca</i>	Musaceae	Therophyte
204	<i>Nymphia sp</i>	Magnoliaceae	Hydrophyte
205	<i>Ocimum americanum</i>	Labiatae	Therophyte
206	<i>Ocimum basilium</i>	Labiatae	Therophyte
207	<i>Ocimum canum</i>	Labiatae	Therophyte
208	<i>Ocimum sanctum</i>	Labiatae	Therophyte
209	<i>Oldenlandia umbellate</i>	Convolvulaceae	Therophyte
210	<i>Oldenlandia corymbosa</i>	Rubiaceae	Therophyte
211	<i>Ooqenia oojensis</i>	Papilionaceae	Phanerophyte
212	<i>Opuntia dillinii</i>	Opuntiaceae	Therophyte
213	<i>Opuntia elator</i>	Cacataceae	Therophyteq
214	<i>Oxalis corniculata</i>	Oxalidaceae	Therophyte
215	<i>Panicum milliria</i>	Poaceae	Hemicryptophyte
216	<i>Panicum notatum</i>	Poaceae	Hemicryptophyte
217	<i>Papaver somniferum</i>	Papaveraceae	Hemicryptophyte
218	<i>Parkinsonia aculata</i>	Mimosaceae	Phanerophyte
219	<i>Parthenium hysterophorus</i>	Compositae	Therophyte
220	<i>Paspalum strobilanthus</i>	Passifloraceae	Hemicryptophyte
221	<i>Passiflora foetida</i>	Passifloraceae	Phanerophyte
222	<i>Pavonia zeylanica</i>	Malvaceae	Phanerophyte
223	<i>Peltophorum ferrusinum</i>	Caesalpinaceae	Phanerophyte
224	<i>Phoenix aculis</i>	Palmae	Phanerophyte
225	<i>Phyllanthus asperulatus</i>	Euphorbiaceae	Phanerophyte
226	<i>Phyllanthus emblica</i>	Euphorbiaceae	Phanerophyte

Sr. No.	Technical Name	Family	Life Form
227	<i>Phyllanthus niruri</i>	Euphorbiaceae	Therophyte
228	<i>Phyllanthus reticulatus</i>	Euphorbiaceae	Therophyte
229	<i>Physalis minima</i>	Solanaceae	Therophyte
230	<i>Pithecolobium dulce</i>	Mimosaceae	Phanerophyte
231	<i>Polyalthia longifolia</i>	Annonaceae	Phanerophyte
232	<i>Polygala ererptera</i>	Polygalaceae	Therophyte
233	<i>Pongamia pinnata</i>	Fabaceae	Phanerophyte
234	<i>Portulaca oleracea</i>	Portulacaceae	Therophyte
235	<i>Psidium guava</i>	Myrtaceae	Phanerophyte
236	<i>Punica granatum</i>	Puniaceae	Therophyte
237	<i>Randia dumetorum</i>	Rubiaceae	Phanerophyte
238	<i>Rosa indica</i>	Rosaceae	Therophyte
239	<i>Rosa machata</i>	Rosaceae	Therophyte
240	<i>Saccharum munja</i>	Poaceae	Hemicryptophyte
241	<i>Saccharum officinarum</i>	Poaceae	Therophyte
242	<i>Salmalia malabarica</i>	Salmaliaceae	Phanerophyte
243	<i>Sapindus emarginatus</i>	Sapindaceae	Phanerophyte
244	<i>Schleichera trijuga</i>	Combretaceae	Phanerophyte
245	<i>Schrebera swietenoides</i>	Sapindaceae	Phanerophyte
246	<i>Schleichera oleosa</i>	Sapindaceae	Phanerophyte
247	<i>Sesamum indicum</i>	Pedaliaceae	Hemicryptophyte
248	<i>Shorea robusta</i>	Dipterocarpaceae	Phanerophyte
249	<i>Sida orientalis</i>	Malvaceae	Phanerophyte
250	<i>Sida ornatifolia</i>	Malvaceae	Hemicryptophyte
251	<i>Solanum nigrum</i>	Solanaceae	Therophyte
252	<i>Solanum xanthocarpum</i>	Solanaceae	Therophyte
253	<i>Sterculia villosa</i>	Tiliaceae	Therophyte
254	<i>Stereospermum chelinoides</i>	Bignoniaceae	Phanerophyte
255	<i>Syzygium cumini</i>	Myrtaceae	Phanerophyte
256	<i>Tamarindus indica</i>	Caesalpinaceae	Phanerophyte
257	<i>Tecomella undulate</i>	Bignoniaceae	Therophyte
258	<i>Tectona grandis</i>	Verbinaceae	Phanerophyte
259	<i>Tephrosia purpuria</i>	Fabaceae	Therophyte
260	<i>Terminalia bellarica</i>	Combretaceae	Phanerophyte
261	<i>Terminalia chebula</i>	Combretaceae	Phanerophyte
262	<i>Terminalia tomentosa</i>	Combretaceae	Phanerophyte
263	<i>Tinospora cordifolia</i>	Rhamnaceae	Therophyte
264	<i>Traqus biflorus</i>	Poaceae	Hemicryptophyte
265	<i>Tribulus terrestris</i>	Zygophyllaceae	Therophyte
266	<i>Tridax procumbens</i>	Compositae	Therophyte
267	<i>Triumferta pilosa</i>	Tiliaceae	
268	<i>Vernonia cinera</i>	Compositae	Therophyte
269	<i>Vicoa indica</i>	Compositae	Phanerophyte
270	<i>Vitex Negundo</i>	Verbinaceae	Phanerophyte
271	<i>Vitex negundo</i>	Verbinaceae	Therophyte
272	<i>Vitis vermicifera</i>	Vitaceae	Therophyte
273	<i>Vivevera zizanoides</i>	Poaceae	Therophyte
274	<i>Wrightia tomentosa</i>	Apocyanaceae	Phanerophyte
275	<i>Xanthium strumariumk</i>	Compositae	Therophyte
276	<i>Yucca gloriosa</i>	Agavaceae	Therophyte
277	<i>Zizyphus jujube</i>	Rhamnaceae	Phanerophyte
278	<i>Zizyphus mauritiana</i>	Rhamanaceae	Phanerophyte
<b>V. Grasslands</b>			
279	<i>Apluda mutica</i>	Poaceae	Hemicryptophyte
280	<i>Chloris dolichosta</i>	Poaceae	Hemicryptophyte
281	<i>Cyanodactylon sp</i>	Poaceae	Geophyte
282	<i>Dichanthium annulatum</i>	Poaceae	Hemicryptophyte
283	<i>Inpurta cylendrica</i>	Poaceae	Hemicryptophyte
284	<i>Sachharum spontanseum</i>	Poaceae	Hemicryptophyte
285	<i>Themeda quadrivalvis</i>	Poaceae	Hemicryptophyte
286	<i>Aristida adscensionsis</i>	Poaceae	Hemicryptophyte
287	<i>Cenchrus ciliaris</i>	Poaceae	Therophyte
288	<i>Cenchrus setifera</i>	Poaceae	Therophyte
289	<i>Cymbopogon jwarancusa</i>	Cyperaceae	Hemicryptophyte
290	<i>Cyperus aristatus</i>	Cyperaceae	Therophyte
291	<i>Cyperus triceps</i>	Cyperaceae	Therophyte

Sr. No.	Technical Name	Family	Life Form
292	<i>Dactylectinium annualatum</i>	Poaceae	
293	<i>Digetaria bicornis</i>	Poaceae	Therophyte
294	<i>Digetaria Segetaria</i>	Poaceae	Hemicryptophyte
295	<i>Eragrostis biferia</i>	Poaceae	Hemicryptophyte
296	<i>Eragrostis tenella</i>	Poaceae	Therophyte
297	<i>Ischaemum rugosum</i>	Poaceae	Therophyte
298	<i>Setaria glauca</i>	Cyperaceae	Hemicryptophyte
299	<i>Eulaliopsis binata</i>	Graminae	Hemicryptophyte
300	<i>Thysanolaena maxima</i>	Graminae	Hemicryptophyte
	<b>Endangered plants</b>	No endangered plant species observed during study period and also from records of Botanical Survey of India (Red data of Books of Indian Plants)	

**TABLE-3**  
**FAUNA AND THEIR CONSERVATION STATUS FROM MINE LEASE AREA (CORE ZONE)**

Technical Name	English Name/ Local Name	Wild Life Protection Act (1972) Status
<b>Aves</b>		
<i>Phalacrocorax niger</i>	Little cormorant	
<i>Nycticorax nycticorax</i>	Night heron	Sch-IV
<i>Ardeola grayii grayii</i>	Paddy bird	Sch-IV
<i>Bubulcus ibis coromandus</i>	Cattle egret	Sch-IV
<i>Eudynamys scolopacea</i>	Indian koel	Sch-IV
<i>Meops philippinus philippinus</i>	Bluetailed bee-eater	Sch-IV
<i>Dinopium benghalense tehminae</i>	Malabar golden backed Woodpecker	Sch-IV
<i>Acridotheres tristis tristis</i>	Common myna	
<i>Nectarinia minima</i>	Small sunbird	Sch-IV
<i>Passer domesticus indicus</i>	Indian house sparrow	Sch-IV
<b>Butterflies</b>		
<i>Hypolimnas bolina Lin.</i>	Great orange fly	
<i>Euploea core Cramer</i>	Common crow	-
<i>Neptis hylas Moore</i>	Common sailor	-
<i>Eurema hecabe Lin.</i>	Common grass yellow	-
<i>Parantica aglea Stoll.</i>	Glassy tiger	-
<b>Mammals</b>		
<i>Funambulus palmarum</i>	Squirrel	
<i>Sus sucrofa</i>	Wild pig	Sch-IV
<i>Herpestes edwardii</i>	Common mongoose	Sch-III
<i>Vulpus benghalensis</i>	Wild fox	Sch-IV
<i>Hystrix indica</i>	Porcupine	Sch-II

**TABLE-4**  
**FAUNA AND THEIR CONSERVATION STATUS IN STUDY AREA (BUFFER ZONE)**

Technical Name	English Name/Local Name	Wild Life Protection Act (1972)
<b>Aves</b>		
<i>Phalacrocorax niger</i>	Little cormorant	
<i>Ardea purpurea manilensis</i>	Eastern purple heron	Sch-IV
<i>Nycticorax nycticorax</i>	Night heron	Sch-IV
<i>Ardeola grayii grayii</i>	Paddy bird	Sch-IV
<i>Dupetor flavicollis</i>	Black bittern	Sch-IV
<i>Ardea alba modesta</i>	Large egret	Sch-IV
<i>Bubulcus ibis coromandus</i>	Cattle egret	Sch-IV
<i>Milvus migrans govinda</i>	Common pariah kite	Sch-IV
<i>Haliastur indus indus</i>	Brahminy kite	Sch-IV
<i>Vanellus indicus indicus</i>	Redwattled lapwing	Sch-IV
<i>Tringa hypoleucos</i>	Common sandpiper	Sch-IV
<i>Gelochelidon nilotica nilotica</i>	Gullbilled tern	Sch-IV
<i>Eudynamys scolopacea</i>	Indian koel	Sch-IV
<i>Halcyon smyrnensis fusca</i>	Indian white breasted Kingfisher	Sch-IV
<i>Meops philippinus philippinus</i>	Bluetailed bee-eater	Sch-IV

Technical Name	English Name/Local Name	Wild Life Protection Act (1972)
<i>Coracias benghalensis indica</i>	Southern Indian Roller	Sch-IV
<i>Dinopium benghalense tehminae</i>	Malabar golden backed Woodpecker	Sch-IV
<i>Acridotheres tristis tristis</i>	Common myna	Sch-IV
<i>Corvus splendens protegatus</i>	Ceylon house crow	Sch-IV
<i>Nectarinia minima</i>	Small sunbird	Sch-IV
<i>Nectarinia zeylonica sola</i>	Indian purple rumped sunbird	Sch-IV
<i>Arachnothera longirostris longirostris</i>	Little spinder hunter	Sch-IV
<i>Passer domesticus indicus</i>	Indian house sparrow	Sch-IV
<i>Copsychus saularis ceylonensis</i>	Southern magpie-robin	Sch-IV
<i>Orthotomus sutorius</i>	Tailor bird guzurata	Sch-IV
<i>Pavocristatus</i>	Peacock	Part-III of Sch-I
<b>Amphibians</b>		
<i>Rana tigrana</i>	Common frog	Sch-IV
<i>Buto melanosticus</i>	Toad	Sch-IV
<b>Reptiles</b>		
<i>Calotes versicolor</i>	Lizard	Sch-IV
<i>Calotes versicolor</i>	Common garden lizard	Sch-IV
<i>Chamaleon zeylanicus</i>	Indian chamaeleon	Sch-II
<i>Lycodon spp.</i>	Wolf snake	Sch-III
<i>Boiga spp.</i>	Cat snake	Sch-III
<i>Bangarus spp.</i>	Krait	Sch-II
<i>Naja naja</i>	Indian cobra	Sch-III
<i>Vipera spp.</i>	Russels viper	Sch-III
<i>Phyton sp</i>	Python sp	Sch-I
<b>Butterflies</b>		
<i>Pachliopta hector Lin.</i>	Crimson rose	-
<i>Papilio demoleus Lin.</i>	Lime butterfly	-
<i>Graphium agamemnon Lin.</i>	Tailed jay	-
<i>Junonia almana Lin.</i>	Peacock pansy	-
<i>Hypolimnas bolina Lin.</i>	Great egg fly	-
<i>Euploea core Cramer</i>	Common crow	-
<i>Neptis hylas Moore</i>	Common sailor	-
<i>Eurema hecabe Lin.</i>	Common grass yellow	-
<i>Catopsilia sp.</i>	Emigrant	-
<b>Mammals</b>		
<i>Rattus sp.</i>	Rat	Sch-IV
<i>Lepus nigricollis</i>	Hare	Sch-IV
<i>Canis auries</i>	Jackal	Sch-III
<i>Presbytis entellus</i>	Langur	Sch-II
<i>Presbytis phayrei</i>	Monkey	Sch-I
<i>Funambulus spp.</i>	Squirrel	Sch-IV
<i>Funambulus palmarum</i>	Squirrel	Sch-IV
<i>Sus sucrofa</i>	Wild pig	Sch-III
<i>Rattus norvegicus</i>	Field mouse	Sch-V
<i>Rattus rattus</i>	House rat	Sch-V
<i>Rhinolopus spp.</i>	Bat	Sch-V
<i>Hipposiderus spp.</i>	Bat	Sch-V
<i>Herpestes edwardii</i>	Common mongoose	Sch-IV
<i>Bandicota indica</i>	Bandicoot	Sch-V
<i>Bandicota bengalensis</i>	Bandicoot	Sch-V
<i>Vulpus benghalensis</i>	Wild fox	Sch-III
<i>Melsurus ursinus</i>	Bear	Sch-III
<i>Hystrix indica</i>	Porcupine	Sch-IV
<i>Axis axis</i>	Spotted deer	Sch-III
<i>Canis lupaspallipes</i>	Indian wolf	Part-I of Sch-I
<i>Mellivora capensis</i>	Indian Ratel	Part-I of Sch-I
<i>Elephas maximas</i>	Indian Elephant	Part-I of Sch-I
<i>Felis chaus</i>	Jungle cat	Part-II of sch-II
<i>Paradoxurus hermophroiditus</i>	Indian Small civet	Part-I of sch-I
<i>Muntiacus muntiacus</i>	Barking deer	Sch-III
<i>Macaca mulata</i>	Monkey	Part-I of Sch-I



**HINDALCO INDUSTRIES LIMITED**  
**SAMRI MINES DIVISION**

Year wise /lease wise Afforestation details

Year	Samri lease		Kudag lease		Tatijharia		Total	
	No. of Saplings	Area in Ha.	No. of Saplings	Area in Ha.	No. of Saplings	Area in Ha.	No. of Saplings	Area in Ha.
1998-2017	167211	68.154	117570	49.98	78925	32.06	363706	150.194
2017-18	11681	4.97	2960	1.22	8868	3.54	23509	9.73
2018-19	19730	7.9	2780	1.11	19967	7.99	42477	17
2019-20	34360	31.59	2980	1.2	32715	18.97	70055	51.76
2020-21	36160	16.918	4865	2.405	28739	12.819	69764	32.142
2021-22	47307	11.465	3270	0.354	21947	5.557	72524	17.376
2022-23	36511	9.898	5020	1.519	17110	5.628	58641	17.045
<b>Total</b>	<b>352960</b>	<b>150.895</b>	<b>139445</b>	<b>57.788</b>	<b>208271</b>	<b>86.564</b>	<b>700676</b>	<b>295.247</b>

  
**Agent of Mines**  
Samri Mines Division  
Hindalco Industries Ltd

**Hindalco Industrial Limited**

**Samri Mines Division**

**Ground Water Level Data FY 2022-23**

<b>Tatijharia Mine Lease Piezometer Reading</b>	
<b>Date</b>	<b>Height(m)</b>
April-22	27.15
May-22	28.07
June-22	28.47
July-22	28.75
August-22	27.50
September-22	28.10
October-22	29.58
November-22	29.58
December-22	28.44
January-2023	28.36
February-2023	30.15
March-2023	30.92
Yearly Average	28.76



## **2.0 Water Quality**

The existing status of water quality for ground water and surface water was assessed by collecting the water samples from underground wells from the piprapat/Nr.mining area.

The purpose of the study is to assess the water quality characteristics for critical parameters, evaluate the impacts on agricultural productivity, habitat conditions, recreational resources and aesthetics in the vicinity and identification of impact on water quality by this project and related activities.

The physico-chemical analysis of water samples collected during the study period is given in **(Table-10 and Fig.5)**. The overall water quality found to be below the stipulated standards of IS 10500-2012 for ground water & found to be fit for drinking purpose for tested parameters. Thus the impacts due to mining activities have been found to be insignificant.

The drinking water is supplied by the tankers from far-away sources. Hence, additional care now be taken to chlorinate the tankers before leaving the supply source.

**Table-10 : Report on Chemical Examination of Ground Water (December - 2022)**

<b>Location Name</b>	GW-1:- Piprapat/Near Mining Area
<b>Sample Source</b>	Borewell Water

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>I</b>	<b>Biological Testing 1. Water</b>					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
<b>II</b>	<b>Chemical Testing 1. Water</b>					
3	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	161.76
4	Ammonia (as N)	mg/l	IS 3025 (Part 34) : 1988	0.5	No relaxation	BDL (DL – 0.1)
5	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL (DL – 0.01)
6	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
7	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
8	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	23.58
9	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	53.91
10	Chloramines (as Cl <sub>2</sub> )	mg/l	IS 3025 (Part 26) : 2021	4.0	No relaxation	BDL (DL – 0.1)
11	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
12	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.24
13	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.57
14	Nitrate (as NO <sub>3</sub> )	mg/l	APHA 23 <sup>rd</sup> Edition	45	No relaxation	BDL (DL – 2)
15	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
16	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.91 at 25°C
17	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL – 0.001)
18	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	16.58
19	Sulphide (as H <sub>2</sub> S)	mg/l	IS 3025 (Part 29) : 1986	0.05	No relaxation	BDL (DL – 0.03)
20	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
21	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	451
22	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
23	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	186.40
24	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	0.5	No relaxation	BDL (DL – 0.001)
<b>II</b>	<b>Chemical Testing 2. Residues In Water</b>					
25	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
26	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
27	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
28	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
29	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
30	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
31	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
32	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
33	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
34	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
35	Molybdenum (as Mo)	mg/l	IS 3025 (Part 2) : 2019	0.07	No relaxation	BDL (DL - 0.01)
36	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
37	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
38	Silver (as Ag)	mg/l	IS 13428 : 2005	0.1	No relaxation	BDL (DL - 0.001)
39	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
40	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)



**Hindalco Industries Limited**  
**Tatijharia Mining Environmental Status**  
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**Salient**  
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**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Results
				Acceptable Limit	Permissible Limit #	
<b>II</b>	<b>Chemical Testing</b>					
	<b>2. Residues In Water</b>					
<b>41</b>	<b>Polychlorinated biphenyls</b>					
	2,2',5-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018	0.5	No relaxation	BDL (DL – 0.03)
	2,4,4'-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',5,5'-tetrachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',4,5,5'-pentachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',3,4,4',5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',4,4',5,5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',3,4,4',5,5'-heptachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
<b>42</b>	<b>Polynuclear aromatic hydrocarbons</b>					
	Naphthalene	µg/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BDL (DL – 0.03)
	Acenaphthylene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Acenaphthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Fluorene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Phenanthrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(a)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Chrysene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(a)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(b)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(k)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Indeno(123,cd)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Dibenzo(a,h)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(ghi)perylene	µg/l	ANtr/7.2/RES/03: 2018	BDL (DL – 0.03)		
<b>43</b>	<b>Trihalomethanes</b>					
i	Bromoform	mg/l	ANtr/7.2/RES/05: 2018	0.1	No relaxation	BDL (DL -0.05)
ii	Dibromochloromethane	mg/l		0.1	No relaxation	BDL (DL -0.05)
iii	Bromodichloromethane	mg/l		0.06	No relaxation	BDL (DL -0.05)
iv	Chloroform	mg/l		0.2	No relaxation	BDL (DL -0.05)
<b>44</b>	<b>Pesticide Residues Organochlorine</b>					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Endosulphan					
	Alpha-Endosulphan	µg/l	ANtr/7.2/RES/01: 2018	0.4	No relaxation	BDL (DL - 0.03)
	Beta-Endosulphan					
	Endosulphan sulphate					



**Hindalco Industries Limited**  
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**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>44</b>	<b>Pesticide Residues Organophosphorus</b>					
xvi	2,4-Dichlorophenoxyacetic acid	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xvii	Monocrotophos	µg/l	ANtr/7.2/RES/02 : 2018	1	No relaxation	BDL (DL - 0.03)
xviii	Atrazine	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
xix	Parathion methyl	µg/l	ANtr/7.2/RES/02 : 2018	0.3	No relaxation	BDL (DL - 0.03)
xx	Paraoxon methyl	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxi	Isoproturon	µg/l	ANtr/7.2/RES/02 : 2018	9	No relaxation	BDL (DL - 0.03)
xxii	Malathion	µg/l	ANtr/7.2/RES/02 : 2018	190	No relaxation	BDL (DL - 0.03)
xxiii	Malaoxon	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxiv	Ethion	µg/l	ANtr/7.2/RES/02 : 2018	3	No relaxation	BDL (DL - 0.03)
xxv	Chlorpyrifos	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xxvi	Phorate	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
	Phorate-sulfone					
	Phorate-sulfoxide					

**NOTES:** ● Please see watermark “Original Test Report” to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● ‘mg/l’ is equivalent to ‘ppm’. ● ‘µg/l’ is equivalent to ‘ppb’. ● BDL- Below detection limit. ● DL- DL Indicates detection limit of instrument /method and shall be considered as ‘absent’. ● Result for test no. 11 is not relevant. ● ANqr RES-: Inhouse validated method.

**REMARKS:** As requested by the client, sample was tested for above parameters only. **Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

-----End of Report-----



**Hindalco Industries Limited**  
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<b>Location Name</b>	GW-2:- BKB Camp
<b>Sample Source</b>	Borewell Water

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
<b>I</b>	<b>Biological Testing 1. Water</b>					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
<b>II</b>	<b>Chemical Testing 1. Water</b>					
3	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	158.31
4	Ammonia (as N)	mg/l	IS 3025 (Part 34) : 1988	0.5	No relaxation	BDL (DL – 0.1)
5	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL (DL – 0.01)
6	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
7	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
8	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	15.76
9	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	38.47
10	Chloramines (as Cl <sub>2</sub> )	mg/l	IS 3025 (Part 26) : 2021	4.0	No relaxation	BDL (DL – 0.1)
11	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
12	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.21
13	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.38
14	Nitrate (as NO <sub>3</sub> )	mg/l	APHA 23 <sup>rd</sup> Edition	45	No relaxation	BDL (DL – 2)
15	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
16	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.14 at 25°C
17	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL – 0.001)
18	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	12.63
19	Sulphide (as H <sub>2</sub> S)	mg/l	IS 3025 (Part 29) : 1986	0.05	No relaxation	BDL (DL – 0.03)
20	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
21	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	291
22	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
23	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	134.70
24	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	0.5	No relaxation	BDL (DL – 0.001)
<b>II</b>	<b>Chemical Testing 2. Residues In Water</b>					
25	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
26	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
27	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
28	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
29	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
30	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
31	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
32	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
33	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
34	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
35	Molybdenum (as Mo)	mg/l	IS 3025 (Part 2) : 2019	0.07	No relaxation	BDL (DL - 0.01)
36	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
37	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
38	Silver (as Ag)	mg/l	IS 13428 : 2005	0.1	No relaxation	BDL (DL - 0.001)
39	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
40	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)



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**Salient**  
**Features**

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Results
				Acceptable Limit	Permissible Limit #	
<b>II</b>	<b>Chemical Testing</b>					
	<b>2. Residues In Water</b>					
<b>41</b>	<b>Polychlorinated biphenyls</b>					
	2,2',5-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018	0.5	No relaxation	BDL (DL - 0.03)
	2,4,4'-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',5,5'-tetrachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',4,5,5'-pentachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',3,4,4',5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',4,4',5,5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',3,4,4',5,5'-heptachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
<b>42</b>	<b>Polynuclear aromatic hydrocarbons</b>					
	Naphthalene	µg/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BDL (DL - 0.03)
	Acenaphthylene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Acenaphthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Fluorene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Phenanthrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(a)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Chrysene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(a)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(b)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(k)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Indeno(123,cd)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Dibenzo(a,h)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(ghi)perylene	µg/l	ANtr/7.2/RES/03: 2018	BDL (DL - 0.03)		
<b>43</b>	<b>Trihalomethanes</b>					
i	Bromoform	mg/l	ANtr/7.2/RES/05: 2018	0.1	No relaxation	BDL (DL -0.05)
ii	Dibromochloromethane	mg/l		0.1	No relaxation	BDL (DL -0.05)
iii	Bromodichloromethane	mg/l		0.06	No relaxation	BDL (DL -0.05)
iv	Chloroform	mg/l		0.2	No relaxation	BDL (DL -0.05)
<b>44</b>	<b>Pesticide Residues Organochlorine</b>					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	<b>Endosulphan</b>					
	Alpha-Endosulphan	µg/l	ANtr/7.2/RES/01: 2018	0.4	No relaxation	BDL (DL - 0.03)
	Beta-Endosulphan					
	Endosulphan sulphate					





**Hindalco Industries Limited**  
**Tatijharia Mining Environmental Status**  
**Report for October-2022 to December-2022**

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**Salient**  
**Features**

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>44</b>	<b>Pesticide Residues Organophosphorus</b>					
xvi	2,4-Dichlorophenoxyacetic acid	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xvii	Monocrotophos	µg/l	ANtr/7.2/RES/02 : 2018	1	No relaxation	BDL (DL - 0.03)
xviii	Atrazine	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
xix	Parathion methyl	µg/l	ANtr/7.2/RES/02 : 2018	0.3	No relaxation	BDL (DL - 0.03)
xx	Paraoxon methyl	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxi	Isoproturon	µg/l	ANtr/7.2/RES/02 : 2018	9	No relaxation	BDL (DL - 0.03)
xxii	Malathion	µg/l	ANtr/7.2/RES/02 : 2018	190	No relaxation	BDL (DL - 0.03)
xxiii	Malaoxon	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxiv	Ethion	µg/l	ANtr/7.2/RES/02 : 2018	3	No relaxation	BDL (DL - 0.03)
xxv	Chlorpyrifos	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xxvi	Phorate	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
	Phorate-sulfone					
	Phorate-sulfoxide					

**NOTES:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'µg/l' is equivalent to 'ppb'. ● BDL- Below detection limit. ● DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. ● Result for test no. 11 is not relevant. ● ANqr RES:- Inhouse validated method.

**REMARKS:** As requested by the client, sample was tested for above parameters only. **Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

-----End of Report-----



## **2.0 Water Quality**

The existing status of water quality for ground water and surface water was assessed by collecting the water samples from underground wells from the piprapat/Nr.mining area.

The purpose of the study is to assess the water quality characteristics for critical parameters, evaluate the impacts on agricultural productivity, habitat conditions, recreational resources and aesthetics in the vicinity and identification of impact on water quality by this project and related activities.

The physico-chemical analysis of water samples collected during the study period is given in **(Table-10 and Fig.5)**. The overall water quality found to be below the stipulated standards of IS 10500-2012 for ground water & found to be fit for drinking purpose for tested parameters. Thus the impacts due to mining activities have been found to be insignificant.

The drinking water is supplied by the tankers from for-away sources. Hence, additional care now be taken to chlorinate the tankers before leaving the supply source.

**Table-10 : Report on Chemical Examination of Ground Water (March - 2023)**

<b>Location Name</b>	GW-1:- Piprapat/Near Mining Area
<b>Sample Source</b>	Borewell Water

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>I</b>	<b>Biological Testing 1. Water</b>					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
<b>II</b>	<b>Chemical Testing 1. Water</b>					
3	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	146.52
4	Ammonia (as N)	mg/l	IS 3025 (Part 34) : 1988	0.5	No relaxation	BDL (DL – 0.1)
5	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL (DL – 0.01)
6	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
7	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
8	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	26.94
9	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	56.28
10	Chloramines (as Cl <sub>2</sub> )	mg/l	IS 3025 (Part 26) : 2021	4.0	No relaxation	BDL (DL – 0.1)
11	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
12	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.21
13	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	13.64
14	Nitrate (as NO <sub>3</sub> )	mg/l	APHA 23 <sup>rd</sup> Edition	45	No relaxation	BDL (DL – 2)
15	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
16	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.72 at 25°C
17	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL – 0.001)
18	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	21.52
19	Sulphide (as H <sub>2</sub> S)	mg/l	IS 3025 (Part 29) : 1986	0.05	No relaxation	BDL (DL – 0.03)
20	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
21	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	463
22	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
23	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	196.69
24	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	0.5	No relaxation	BDL (DL – 0.001)
<b>II</b>	<b>Chemical Testing 2. Residues In Water</b>					
25	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
26	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
27	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
28	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
29	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
30	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
31	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.16
32	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
33	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
34	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
35	Molybdenum (as Mo)	mg/l	IS 3025 (Part 2) : 2019	0.07	No relaxation	BDL (DL - 0.01)
36	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
37	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
38	Silver (as Ag)	mg/l	IS 13428 : 2005	0.1	No relaxation	BDL (DL - 0.001)
39	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
40	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)



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**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Results
				Acceptable Limit	Permissible Limit #	
<b>II</b>	<b>Chemical Testing</b>					
	<b>2. Residues In Water</b>					
<b>41</b>	<b>Polychlorinated biphenyls</b>					
	2,2',5-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018	0.5	No relaxation	BDL (DL – 0.03)
	2,4,4'-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',5,5'-tetrachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',4,5,5'-pentachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',3,4,4',5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',4,4',5,5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
	2,2',3,4,4',5,5'-heptachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL – 0.03)
<b>42</b>	<b>Polynuclear aromatic hydrocarbons</b>					
	Naphthalene	µg/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BDL (DL – 0.03)
	Acenaphthylene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Acenaphthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Fluorene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Phenanthrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(a)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Chrysene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(a)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(b)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(k)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Indeno(123,cd)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Dibenzo(a,h)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL – 0.03)
	Benzo(ghi)perylene	µg/l	ANtr/7.2/RES/03: 2018	BDL (DL – 0.03)		
<b>43</b>	<b>Trihalomethanes</b>					
i	Bromoform	mg/l	ANtr/7.2/RES/05: 2018	0.1	No relaxation	BDL (DL -0.05)
ii	Dibromochloromethane	mg/l		0.1	No relaxation	BDL (DL -0.05)
iii	Bromodichloromethane	mg/l		0.06	No relaxation	BDL (DL -0.05)
iv	Chloroform	mg/l		0.2	No relaxation	BDL (DL -0.05)
<b>44</b>	<b>Pesticide Residues Organochlorine</b>					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Endosulphan					
	Alpha-Endosulphan	µg/l	ANtr/7.2/RES/01: 2018	0.4	No relaxation	BDL (DL - 0.03)
	Beta-Endosulphan					
	Endosulphan sulphate					



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**Salient**  
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**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>44</b>	<b>Pesticide Residues Organophosphorus</b>					
xvi	2,4-Dichlorophenoxyacetic acid	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xvii	Monocrotophos	µg/l	ANtr/7.2/RES/02 : 2018	1	No relaxation	BDL (DL - 0.03)
xviii	Atrazine	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
xix	Parathion methyl	µg/l	ANtr/7.2/RES/02 : 2018	0.3	No relaxation	BDL (DL - 0.03)
xx	Paraoxon methyl	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxi	Isoproturon	µg/l	ANtr/7.2/RES/02 : 2018	9	No relaxation	BDL (DL - 0.03)
xxii	Malathion	µg/l	ANtr/7.2/RES/02 : 2018	190	No relaxation	BDL (DL - 0.03)
xxiii	Malaoxon	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxiv	Ethion	µg/l	ANtr/7.2/RES/02 : 2018	3	No relaxation	BDL (DL - 0.03)
xxv	Chlorpyrifos	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xxvi	Phorate	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
	Phorate-sulfone					
	Phorate-sulfoxide					

**NOTES:** ● Please see watermark “Original Test Report” to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● ‘mg/l’ is equivalent to ‘ppm’. ● ‘µg/l’ is equivalent to ‘ppb’. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as ‘absent’.** ● Result for test no. 11 is not relevant. ● ANqr RES-: Inhouse validated method.

**REMARKS:** As requested by the client, sample was tested for above parameters only. **Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

-----End of Report-----



**Hindalco Industries Limited**  
**Tatijharia Mining Environmental Status**  
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**Salient**  
**Features**

<b>Location Name</b>	GW-2:- BKB Camp
<b>Sample Source</b>	Borewell Water

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
<b>I</b>	<b>Biological Testing 1. Water</b>					
1	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
2	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
<b>II</b>	<b>Chemical Testing 1. Water</b>					
3	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	148.24
4	Ammonia (as N)	mg/l	IS 3025 (Part 34) : 1988	0.5	No relaxation	BDL (DL – 0.1)
5	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : 2005 Annex K	0.2	1.0	BDL (DL – 0.01)
6	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
7	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
8	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	18.32
9	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	41.51
10	Chloramines (as Cl <sub>2</sub> )	mg/l	IS 3025 (Part 26) : 2021	4.0	No relaxation	BDL (DL – 0.1)
11	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
12	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.26
13	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	8.53
14	Nitrate (as NO <sub>3</sub> )	mg/l	APHA 23 <sup>rd</sup> Edition	45	No relaxation	BDL (DL – 2)
15	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
16	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.31 at 25°C
17	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1992	0.001	0.002	BDL (DL – 0.001)
18	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	14.63
19	Sulphide (as H <sub>2</sub> S)	mg/l	IS 3025 (Part 29) : 1986	0.05	No relaxation	BDL (DL – 0.03)
20	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
21	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	274
22	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.6
23	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	138.79
24	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	0.5	No relaxation	BDL (DL – 0.001)
<b>II</b>	<b>Chemical Testing 2. Residues In Water</b>					
25	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
26	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
27	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
28	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
29	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
30	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
31	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.26
32	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
33	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL – 0.05)
34	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
35	Molybdenum (as Mo)	mg/l	IS 3025 (Part 2) : 2019	0.07	No relaxation	BDL (DL - 0.01)
36	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
37	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
38	Silver (as Ag)	mg/l	IS 13428 : 2005	0.1	No relaxation	BDL (DL - 0.001)
39	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
40	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)



**Hindalco Industries Limited**  
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**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Results
				Acceptable Limit	Permissible Limit #	
<b>II</b>	<b>Chemical Testing</b>					
	<b>2. Residues In Water</b>					
<b>41</b>	<b>Polychlorinated biphenyls</b>					
	2,2',5-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018	0.5	No relaxation	BDL (DL - 0.03)
	2,4,4'-trichlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',5,5'-tetrachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',4,5,5'-pentachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',3,4,4',5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',4,4',5,5'-hexachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
	2,2',3,4,4',5,5'-heptachlorobiphenyl	µg/l	ANtr/7.2/RES/04: 2018			BDL (DL - 0.03)
<b>42</b>	<b>Polynuclear aromatic hydrocarbons</b>					
	Naphthalene	µg/l	ANtr/7.2/RES/03: 2018	0.1	No relaxation	BDL (DL - 0.03)
	Acenaphthylene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Acenaphthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Fluorene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Phenanthrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(a)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Chrysene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(a)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(b)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(k)fluoranthene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Indeno(123,cd)pyrene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Dibenzo(a,h)anthracene	µg/l	ANtr/7.2/RES/03: 2018			BDL (DL - 0.03)
	Benzo(ghi)perylene	µg/l	ANtr/7.2/RES/03: 2018	BDL (DL - 0.03)		
<b>43</b>	<b>Trihalomethanes</b>					
i	Bromoform	mg/l	ANtr/7.2/RES/05: 2018	0.1	No relaxation	BDL (DL -0.05)
ii	Dibromochloromethane	mg/l		0.1	No relaxation	BDL (DL -0.05)
iii	Bromodichloromethane	mg/l		0.06	No relaxation	BDL (DL -0.05)
iv	Chloroform	mg/l		0.2	No relaxation	BDL (DL -0.05)
<b>44</b>	<b>Pesticide Residues Organochlorine</b>					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	<b>Endosulphan</b>					
	Alpha-Endosulphan	µg/l	ANtr/7.2/RES/01: 2018	0.4	No relaxation	BDL (DL - 0.03)
	Beta-Endosulphan					
	Endosulphan sulphate					



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**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>44</b>	<b>Pesticide Residues Organophosphorus</b>					
xvi	2,4-Dichlorophenoxyacetic acid	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xvii	Monocrotophos	µg/l	ANtr/7.2/RES/02 : 2018	1	No relaxation	BDL (DL - 0.03)
xviii	Atrazine	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
xix	Parathion methyl	µg/l	ANtr/7.2/RES/02 : 2018	0.3	No relaxation	BDL (DL - 0.03)
xx	Paraoxon methyl	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxi	Isoproturon	µg/l	ANtr/7.2/RES/02 : 2018	9	No relaxation	BDL (DL - 0.03)
xxii	Malathion	µg/l	ANtr/7.2/RES/02 : 2018	190	No relaxation	BDL (DL - 0.03)
xxiii	Malaaxon	µg/l	ANtr/7.2/RES/02 : 2018	-	-	BDL (DL - 0.03)
xxiv	Ethion	µg/l	ANtr/7.2/RES/02 : 2018	3	No relaxation	BDL (DL - 0.03)
xxv	Chlorpyrifos	µg/l	ANtr/7.2/RES/02 : 2018	30	No relaxation	BDL (DL - 0.03)
xxvi	Phorate	µg/l	ANtr/7.2/RES/02 : 2018	2	No relaxation	BDL (DL - 0.03)
	Phorate-sulfone					
	Phorate-sulfoxide					

**NOTES:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● 'µg/l' is equivalent to 'ppb'. ● BDL- Below detection limit. ● DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. ● Result for test no. 11 is not relevant. ● ANqr RES:- Inhouse validated method.

**REMARKS:** As requested by the client, sample was tested for above parameters only. **Sample complies with IS:10500:2012, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

-----End of Report-----





भारत सरकार  
जल शक्ति मंत्रालय  
जल संसाधन, नदी विकास  
और गंगा संरक्षण विभाग  
केन्द्रीय भूमि जल प्राधिकरण  
Government of India  
Ministry of Jal Shakti  
Department of Water Resources,  
River Development & Ganga Rejuvenation  
Central Ground Water Authority

Annexure- E

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

**NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION**

Project Name:	Tatijharia Bauxite Mine Of M/s Hindalco Industries Limited		
Project Address:	Village-tatijharia		
Village:	Tatijhariya	Block:	Kusmi
District:	Balrampur	State:	Chhattisgarh
Pin Code:			
Communication Address:	Hindalco Industries Limited, Mines Division Samri, At And Po - Kusmi, Kusmi, Balrampur, Chhattisgarh - 497224		
Address of CGWB Regional Office :	Central Ground Water Board North Central Chhattisgarh, 2nd Floor, Lk Corporate And Logistic Park, Dhamtari Road, Nh-30, Dumartarai, Raipur, Chhattisgarh - 492015		

1. <b>NOC No.:</b>	CGWA/NOC/MIN/REN/2/2023/7571	2. <b>Date of Issuance</b>	03/04/2023										
3. Application No.:	21-4/1434/CT/MIN/2018	4. Category: (GWRE 2020)	Safe										
5. Project Status:	Existing Ground Water	6. NOC Type:	Renewal										
7. <b>Valid from:</b>	28/03/2023	8. <b>Valid up to:</b>	27/03/2025										
9. Ground Water Abstraction Permitted:													
Fresh Water		Saline Water		Dewatering		Total							
m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year						
5.00	1550.00												
10. Details of ground water abstraction /Dewatering structures													
<b>Total Existing No.:5</b>							<b>Total Proposed No.:0</b>						
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu	
Abstraction Structure*	0	0	1	4	0	0	0	0	0	0	0	0	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps													
11. Ground Water Abstraction/Restoration Charges paid (Rs.):							1550.00						

**(Compliance Conditions given overleaf)**

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

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**Validity of this NOC shall be subject to compliance of the following conditions:**

**Mandatory conditions:**

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website ([www.cgwa-noc.gov.in](http://www.cgwa-noc.gov.in)) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m<sup>3</sup>/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

**General conditions:**

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCPE list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m<sup>3</sup>/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

**(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)**

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**Hindalco Industries Limited**  
**Tatijharia Mining Environmental Status**  
**Report for October-2022 to December-2022**

**Details of**  
**Salient**  
**Features**

**Table 6**

Annexure-F

**Statistical Analysis**

Location	Month & Year	PM-10 ( $\mu\text{g}/\text{m}^3$ )	PM-2.5 ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )	Hg ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )	Cr ( $\mu\text{g}/\text{m}^3$ )
<b>Core Zone</b>										
Tatijharia Village/ Nr. Weigh Bridge	Oct-2022	58.0	22.8	13.3	23.2	0.180	0.016	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	61.6	20.6	9.8	20.0	0.207	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	61.4	21.2	10.6	18.3	0.203	0.016	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Piprapat/ Nr. Mining Area	Oct-2022	56.9	23.5	12.7	23.7	0.193	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	64.1	21.8	10.3	19.8	0.217	0.016	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	62.8	19.7	10.6	19.0	0.205	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Virhorepat	Oct-2022	54.2	20.8	10.3	19.3	0.166	0.016	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	63.0	22.1	10.7	20.3	0.226	0.019	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	60.0	21.1	10.9	19.0	0.214	0.015	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Betpani	Oct-2022	53.7	20.2	9.8	19.2	0.170	0.015	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	57.7	21.3	9.1	17.4	0.227	0.015	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	55.9	19.3	8.8	17.8	0.171	0.015	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
<b>CPCB Standards</b>		<b>100</b> (24 hrs)	<b>60</b> (24 hrs)	<b>80</b> (24 hrs)	<b>80</b> (24 hrs)	<b>2</b> (8 hrs)	<b>1.0</b> (24 hrs)	---	<b>6.0</b> (annual)	---
<b>Minimum</b>		53.7	19.3	8.8	17.4	0.166	0.015	---	---	---
<b>Maximum</b>		64.1	23.5	13.3	23.7	0.227	0.019	---	---	---
<b>Average</b>		59.1	21.2	10.6	19.8	0.198	0.016	---	---	---
<b>98% le</b>		63.9	23.3	13.2	23.6	0.227	0.019	---	---	---

NOTE: ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

- The Average Concentration of PM<sub>10</sub> within the Core Zone of Tatijharia Lease is 59.1  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of PM<sub>2.5</sub> within the Core Zone of Tatijharia Lease is 21.2  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of SO<sub>2</sub> within the Core Zone of Tatijharia Lease is 10.6  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of NO<sub>2</sub> within the Core Zone of Tatijharia Lease is 19.8  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of CO within the Core Zone of Tatijharia Lease is 0.198  $\text{mg}/\text{m}^3$ .
- The Average Concentration of Pb within the Core Zone of Tatijharia Lease is 0.016  $\mu\text{g}/\text{m}^3$ .

**Conclusion:** -The Average Concentration within the Core Zone of Tatijharia Lease during this period (October-November-December-2022). It is within permissible limits as per CPCB Standards.



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**Features**

Location	Month & Year	PM-10 ( $\mu\text{g}/\text{m}^3$ )	PM-2.5 ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )	Hg ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )	Cr ( $\mu\text{g}/\text{m}^3$ )
<b>Buffer Zone</b>										
KutkuVillage /Nr.V.T.Center	Oct-2022	53.4	18.7	8.0	17.3	0.247	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	49.5	17.8	7.3	16.2	0.185	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	50.8	16.6	8.4	15.3	0.185	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Sairaidh Campus	Oct-2022	59.8	21.6	10.1	20.4	0.184	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	51.3	17.3	7.5	16.6	0.172	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	50.9	16.7	7.3	16.8	0.166	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Rajendrapur/ Nr.Mining Area	Oct-2022	60.2	20.5	10.6	20.9	0.265	0.016	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	61.9	25.3	15.4	23.4	0.237	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	59.9	25.0	16.2	22.8	0.209	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Dumerkholi/ Nr.Mining Area	Oct-2022	51.7	18.8	8.9	16.5	0.214	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Nov-2022	60.4	21.7	9.3	19.0	0.237	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Dec-2022	59.0	21.7	14.6	21.9	0.162	0.015	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
<b>CPCB Standards</b>		<b>100</b> <b>(24 hrs)</b>	<b>60</b> <b>(24 hrs)</b>	<b>80</b> <b>(24 hrs)</b>	<b>80</b> <b>(24 hrs)</b>	<b>2</b> <b>(8 hrs)</b>	<b>1.0</b> <b>(24 hrs)</b>	<b>---</b>	<b>6.0</b> <b>(annual)</b>	<b>---</b>
<b>Minimum</b>		<b>49.5</b>	<b>16.6</b>	<b>7.3</b>	<b>15.3</b>	<b>0.162</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>Maximum</b>		<b>61.9</b>	<b>25.3</b>	<b>16.2</b>	<b>23.4</b>	<b>0.265</b>	<b>0.017</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>Average</b>		<b>55.7</b>	<b>20.1</b>	<b>10.3</b>	<b>18.9</b>	<b>0.205</b>	<b>0.016</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>98% le</b>		<b>61.6</b>	<b>25.2</b>	<b>16.0</b>	<b>23.3</b>	<b>0.261</b>	<b>0.017</b>	<b>---</b>	<b>---</b>	<b>---</b>

NOTE: ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

- The Average Concentration of PM<sub>10</sub> within the Buffer Zone of Tatijharia Lease is 55.7  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of PM<sub>2.5</sub> within the Buffer Zone of Tatijharia Lease is 20.1  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of SO<sub>2</sub> within the Buffer Zone of Tatijharia Lease is 10.3  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of NO<sub>2</sub> within the Buffer Zone of Tatijharia Lease is 18.9  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of CO within the Buffer Zone of Tatijharia Lease is 0.205  $\text{mg}/\text{m}^3$ .
- The Average Concentration of Pb within the Buffer Zone of Tatijharia Lease is 0.016  $\mu\text{g}/\text{m}^3$ .

**Conclusion:** -The Average Concentration within the Buffer Zone of Tatijharia Lease during this period (October-November-December-2022). It is within permissible limits as per CPCB Standards.

### **Month-wise Summary of Statistical Analysis**

#### **Tatijharia Lease (Core Zone):-**

##### **1.6 Ambient Air Quality:**

Ambient air quality has been generated as per NAAQS 2009 for the month of October-November-December-2022. PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> & CO, The values obtained were then compared vis-a-vis the standards prescribed by CPCB for Industrial/ Rural / Residential uses.

##### **1.6.1 Presentation of Results:**

The summary of Ambient Air Quality monitoring results from October-2022 to December-2022 are presented in detail in Table 4.0. 98<sup>th</sup> percentile, maximum and minimum values etc. have been computed from the collected raw data for all the AAQ monitoring station. The data has been compared with the standards prescribed by Central Pollution Control Board (CPCB)/NAAQS for residential and rural zone.

##### **A. Particulate Matter-PM<sub>10</sub>:**

The minimum and maximum concentrations for Particulate Matter-PM<sub>10</sub> were recorded as 53.7 µg/m<sup>3</sup> and 64.1 µg/m<sup>3</sup> at Betpani and Piprapat/Nr. Mining area respectively. The average concentration of PM<sub>10</sub> was 59.1 µg/m<sup>3</sup>.

##### **B. Particulate Matter-PM<sub>2.5</sub>:**

The minimum and maximum concentrations for Particulate Matter-PM<sub>2.5</sub> were recorded as 19.3 µg/m<sup>3</sup> & 23.5 µg/m<sup>3</sup> at Betpani and Piprapat/Nr. Mining area respectively. The average concentration of PM<sub>2.5</sub> was 21.2 µg/m<sup>3</sup>.

##### **C. Sulphur Dioxide (SO<sub>2</sub>):**

The minimum and maximum for SO<sub>2</sub> concentrations were recorded as 8.8 µg/m<sup>3</sup> and 13.3 µg/m<sup>3</sup> respectively. The minimum concentration was recorded at Betpani and maximum concentration was also recorded at Tatijharia Village/ Nr.Weigh Bridge respectively. The average concentration of SO<sub>2</sub> was 10.6 µg/m<sup>3</sup>.

##### **D. Nitrogen Dioxide (NO<sub>2</sub>):**

The minimum and maximum for NO<sub>2</sub> concentrations were recorded as 17.4 µg/m<sup>3</sup> and 23.7 µg/m<sup>3</sup>. The minimum concentration was recorded at Betpani and maximum concentration was also recorded at Piprapat/Nr. Mining area respectively. The average concentration of NO<sub>2</sub> was 19.8 µg/m<sup>3</sup>.



**E. Carbon Monoxide (CO):**

The minimum and maximum for CO concentrations were recorded as 0.166 mg/m<sup>3</sup> and 0.227 mg/m<sup>3</sup>. The minimum concentration was recorded at Virhorepat and maximum concentration was also recorded at Betpani respectively. The average concentration of CO was 0.198 mg/m<sup>3</sup>.

**F. Lead (Pb):**

Maximum Lead detected in PM<sub>10</sub> samples was 0.019 µg/m<sup>3</sup> at Virhorepat respectively. No lead could be detected in PM<sub>2.5</sub> samples at any of the Ambient Air samples at any of the locations.

**G. Mercury(Hg):**

Mercury was not detected at any of the locations in PM<sub>10</sub> samples as well as PM<sub>2.5</sub> Samples.

**H. Arsenic (As):**

Arsenic was not detected at any of the locations in PM<sub>10</sub> samples as well as PM<sub>2.5</sub> Samples.

**I. Chromium(Cr):**

Chromium was not detected at any of the locations in PM<sub>10</sub> samples as well as PM<sub>2.5</sub> Samples.



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**Table 6**

**Statistical Analysis**

Location	Month & Year	PM-10 ( $\mu\text{g}/\text{m}^3$ )	PM-2.5 ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )	Hg ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )	Cr ( $\mu\text{g}/\text{m}^3$ )
<b>Core Zone</b>										
Tatijharia Vllage/ Nr.Weigh Bridge	Jan-2023	59.0	21.2	9.5	20.8	BDL (DL-0.5)	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	61.0	22.8	10.7	20.2	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	59.1	22.1	9.5	20.0	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Piprapat/ Nr. Mining Area	Jan-2023	57.3	19.5	9.4	19.1	BDL (DL-0.5)	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	59.1	20.9	9.5	19.9	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	62.0	23.8	10.8	21.9	BDL (DL-0.5)	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Virhorepat	Jan-2023	55.7	20.3	10.6	20.2	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	54.6	20.0	9.3	18.8	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	60.5	22.2	10.8	21.2	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Betpani	Jan-2023	57.7	20.9	9.6	18.7	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	55.9	19.4	9.4	18.0	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	54.2	19.3	7.5	18.2	BDL (DL-0.5)	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
<b>CPCB Standards</b>		<b>100</b> <b>(24 hrs)</b>	<b>60</b> <b>(24 hrs)</b>	<b>80</b> <b>(24 hrs)</b>	<b>80</b> <b>(24 hrs)</b>	<b>2</b> <b>(8 hrs)</b>	<b>1.0</b> <b>(24 hrs)</b>	<b>---</b>	<b>6.0</b> <b>(annual)</b>	<b>---</b>
<b>Minimum</b>		<b>54.2</b>	<b>19.3</b>	<b>7.5</b>	<b>18.0</b>	<b>---</b>	<b>0.017</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>Maximum</b>		<b>62.0</b>	<b>23.8</b>	<b>10.8</b>	<b>21.9</b>	<b>---</b>	<b>0.018</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>Average</b>		<b>58.0</b>	<b>21.0</b>	<b>9.7</b>	<b>19.8</b>	<b>---</b>	<b>0.017</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>98% le</b>		<b>61.8</b>	<b>23.6</b>	<b>10.8</b>	<b>21.7</b>	<b>---</b>	<b>0.018</b>	<b>---</b>	<b>---</b>	<b>---</b>

NOTE: ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

- The Average Concentration of PM<sub>10</sub> within the Core Zone of Tatijharia Lease is 58.0  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of PM<sub>2.5</sub> within the Core Zone of Tatijharia Lease is 21.0  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of SO<sub>2</sub> within the Core Zone of Tatijharia Lease is 9.7  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of NO<sub>2</sub> within the Core Zone of Tatijharia Lease is 19.8  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of Pb within the Core Zone of Tatijharia Lease is 0.017  $\mu\text{g}/\text{m}^3$ .

**Conclusion:** -The Average Concentration within the Core Zone of Tatijharia Lease during this period (January-February-March-2023). It is within permissible limits as per CPCB Standards.



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**Salient**  
**Features**

Location	Month & Year	PM-10 ( $\mu\text{g}/\text{m}^3$ )	PM-2.5 ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )	Hg ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )	Cr ( $\mu\text{g}/\text{m}^3$ )
<b>Buffer Zone</b>										
Kutku Village /Nr.V.T.Center	Jan-2023	57.4	22.2	9.4	20.0	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	59.6	21.4	10.0	19.9	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	59.3	19.7	9.6	18.3	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Sairaidh Campus	Jan-2023	61.5	21.1	10.0	20.0	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	56.2	19.6	9.2	19.6	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	60.0	21.1	10.0	19.1	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Rajendrapur/ Nr.Mining Area	Jan-2023	51.4	19.1	7.9	16.8	BDL (DL-0.5)	0.017	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	53.2	17.8	7.8	16.4	BDL (DL-0.5)	0.016	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	53.2	17.8	8.1	17.0	BDL (DL-0.5)	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
Dumerkholi/ Nr.Mining Area	Jan-2023	58.5	18.2	9.4	18.9	BDL (DL-0.5)	BDL (DL-0.01)	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	Feb-2023	59.4	20.6	10.1	19.7	BDL (DL-0.5)	0.018	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
	March-2023	60.6	21.1	10.5	20.5	BDL (DL-0.5)	0.015	BDL (DL-0.0005)	BDL (DL-0.1)	BDL (DL-0.03)
<b>CPCB Standards</b>		<b>100</b> (24 hrs)	<b>60</b> (24 hrs)	<b>80</b> (24 hrs)	<b>80</b> (24 hrs)	<b>2</b> (8 hrs)	<b>1.0</b> (24 hrs)	---	<b>6.0</b> (annual)	---
<b>Minimum</b>		<b>51.4</b>	<b>17.8</b>	<b>7.8</b>	<b>16.4</b>	---	---	---	---	---
<b>Maximum</b>		<b>61.5</b>	<b>22.2</b>	<b>10.5</b>	<b>20.5</b>	---	<b>0.018</b>	---	---	---
<b>Average</b>		<b>57.5</b>	<b>20.0</b>	<b>9.3</b>	<b>18.9</b>	---	<b>0.017</b>	---	---	---
<b>98% le</b>		<b>61.3</b>	<b>22.0</b>	<b>10.4</b>	<b>20.4</b>	---	<b>0.018</b>	---	---	---

NOTE: ● BDL- Below detection limit ● DL- Indicates detection limit of instrument/method and shall be considered as 'absent'.

- The Average Concentration of PM<sub>10</sub> within the Buffer Zone of Tatijharia Lease is 57.5  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of PM<sub>2.5</sub> within the Buffer Zone of Tatijharia Lease is 20.0  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of SO<sub>2</sub> within the Buffer Zone of Tatijharia Lease is 9.3  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of NO<sub>2</sub> within the Buffer Zone of Tatijharia Lease is 18.9  $\mu\text{g}/\text{m}^3$ .
- The Average Concentration of Pb within the Buffer Zone of Tatijharia Lease is 0.017  $\mu\text{g}/\text{m}^3$ .

**Conclusion:** -The Average Concentration within the Buffer Zone of Tatijharia Lease during this period (January-February-March-2023). It is within permissible limits as per CPCB Standards.





### **Month-wise Summary of Statistical Analysis**

#### **Tatijharia Lease (Core Zone):-**

##### **1.6 Ambient Air Quality:**

Ambient air quality has been generated as per NAAQS 2009 for the month of January-February-March-2023. PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub> & CO, The values obtained were then compared vis-a-vis the standards prescribed by CPCB for Industrial/ Rural / Residential uses.

##### **1.6.1 Presentation of Results:**

The summary of Ambient Air Quality monitoring results from January-2023 to March- 2023 are presented in detail in Table 4.0. 98<sup>th</sup> percentile, maximum and minimum values etc. have been computed from the collected raw data for all the AAQ monitoring station. The data has been compared with the standards prescribed by Central Pollution Control Board (CPCB)/NAAQS for residential and rural zone.

##### **A. Particulate Matter-PM<sub>10</sub>:**

The minimum and maximum concentrations for Particulate Matter-PM<sub>10</sub> were recorded as 54.2 µg/m<sup>3</sup> and 62.0 µg/m<sup>3</sup> at Betpani and Piprapat/Nr. Mining area respectively. The average concentration of PM<sub>10</sub> was 58.0 µg/m<sup>3</sup>.

##### **B. Particulate Matter-PM<sub>2.5</sub>:**

The minimum and maximum concentrations for Particulate Matter-PM<sub>2.5</sub> were recorded as 19.3 µg/m<sup>3</sup> & 23.8 µg/m<sup>3</sup> at Betpani and Piprapat/Nr. Mining area respectively. The average concentration of PM<sub>2.5</sub> was 21.0 µg/m<sup>3</sup>.

##### **C. Sulphur Dioxide (SO<sub>2</sub>):**

The minimum and maximum for SO<sub>2</sub> concentrations were recorded as 7.5 µg/m<sup>3</sup> and 10.8 µg/m<sup>3</sup> respectively. The minimum concentration was recorded at Betpani and maximum concentration was also recorded at Virhorepat respectively. The average concentration of SO<sub>2</sub> was 9.7 µg/m<sup>3</sup>.

##### **D. Nitrogen Dioxide (NO<sub>2</sub>):**

The minimum and maximum for NO<sub>2</sub> concentrations were recorded as 18.0 µg/m<sup>3</sup> and 21.9 µg/m<sup>3</sup>. The minimum concentration was recorded at Betpani and maximum concentration was also recorded at Piprapat/Nr. Mining area respectively. The average concentration of NO<sub>2</sub> was 19.8 µg/m<sup>3</sup>.



**E. Carbon Monoxide (CO):**

No CO could be detected in the Ambient Air samples at any of the locations.

**F. Lead (Pb):**

Maximum Lead detected in PM<sub>10</sub> samples was 0.018 µg/m<sup>3</sup> at Piprapat/Nr. Mining area respectively. No lead could be detected in PM<sub>2.5</sub> samples at any of the Ambient Air samples at any of the locations.

**G. Mercury(Hg):**

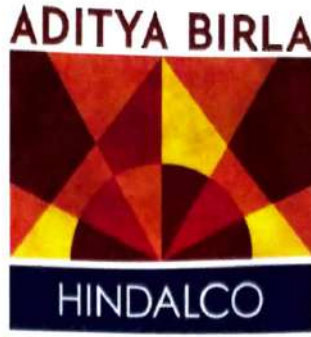
Mercury was not detected at any of the locations in PM<sub>10</sub> samples as well as PM<sub>2.5</sub> Samples.

**H. Arsenic (As):**

Arsenic was not detected at any of the locations in PM<sub>10</sub> samples as well as PM<sub>2.5</sub> Samples.

**I. Chromium(Cr):**

Chromium was not detected at any of the locations in PM<sub>10</sub> samples as well as PM<sub>2.5</sub> Samples.



Annexure-G

**Hindalco Industries Limited**  
**Mines Division, Samri**

Date: 04.01.2023

**Environment Management Cell**

An Environment Management Cell is reconstituted by the following members which is compliance of the EC Conditions for the Samri, Tatijharia and Kudag Bauxite Mines.

Sl. No.	Name	Designation	Position
01	Mr. Vijay Chauhan	Agent of Mines	Chairman
02	Mr. Amit Tiwari	Manager-Mines	Secretary
03	Mr. Praween Pradhan	Manager-Geology	Member
04	Mrs. Madhusmita Parida	Asst. Manager-Env	Member
05	Mr. Ashutosh Saha	Asst. Manager-Sustainability	Member
06	Dr. Ajay Kumar	Medical Officer	Member
07	Mr. K K Singh	Dy. Manager	Member

For Hindalco Industries Ltd.

  
Vijay Singh Chauhan  
Agent of Mines  
Head Mines

# 56 दजन जुआरया स 17 हजार बरामद

## बड़े-छोटे जुआरी एक ही दिन पकड़े गए

हरिभूमि न्यून (अभिकल्प)।

समगोपण अवकाल को टोकाकर घर एकेला। इन जुआ फंड को पुलिस ने 1700 रुपए पर तोड़ा के चले

लिए सवे 52 को रूपए के तार के बने जल दिए गए हैं। पुलिस को यह भारीबाई तबि 9 घण्टे एव 9 घण्टे के बीच को है।



जो हुए वाली के न-पार-बरे उड़ न जुआरियों को डककर लानाए जुआर रूपए मद करी से लवा पाई है। इ सुकर जोहा तब के समार। घेसे लोग भी न खोलते पकड़े गो गरी के अदी ही नई बरिष विधियों में मन् रहे है। इन को एक एकद अभियान जुआरियों में कपन मारो हुई है।

पुलिस अधीक्षक हेमकला राठी, निर्देश में संकुली जेजा. इन सा नेटान में बीलो एन कार डककर नगर सिरोली, विरोध तब के प्रभरी जनेजा. सिंह, इन एका के नेतृत्व में निक्के इन घल ने मयसे पकड़े रिय बाध समीप दुका खेन रहे सवेस जारल, मनीष अर्धनक, विठु खाल, अरोक जणयाल,

पले लोग भी खेलेते है जुआ

बरामद किया है। इसके बाद पुलिस को टीम सीपडाकार पहुंची। मधरे पर जुआ खेल रहे सुरेश जकका, रजनी मधुप, रमेश सिंह, पशोत खान, रूपत गुन, सरोप को डिपारा में खेला इनके कब्जे से 17 हजार के

खान कुमार लखाध्याय, निरान लखन को भी इनके एकद इनके कब्जे से लखान 250 रुपए एक राता के घुसे जल किए गए हैं। सभी जुआरियों पर पुलिस ने 13 जुआ एक को भारिप को है।

चिहने घरे हुए किया गया है। इनके कब्जे को सिखान के लिए लखान को इनकप नही है। लखान को मरतन नही रहने के करीन अर्द्धीजाई के प्रतिशणको बने पूरे अर्द्धीजाई संकष में आते थे जोर बिना कुछ किए घुस कर घर आता करते जाते थे। इनके कंक्टकल को भी जानकरी नही थी गई। घेसे में प्रारिखणारियों को भविष्य अंभर में है। छात्रों को कहना है कि 20 अरसे से बंधिका परीक्ष जुक है। छात्रों को पढ़ाई नही हुई है किन्तु किसी तरह पर कर छात्रों को परीक्षा के जतारों पर लेगे किन्तु प्रोक्टरन का पोहा भी नून नहीं है। उन्होंने बताया कि प्रारिखणारियों के द्वारा एकद डेल

जायेगी परीक्षा के किसी प्रकार परीक्षा होवे को प्रारिखणारियों महाभुषित दुबक विचार, नि सारण। जितने संसाधन लखकन बकली अंतर पर अंधारन कराम पाया है। परीक्षा को है अखिल भारतीय स्तर पर निषा को कभी है इहालिप परेसः को नि परीख लकना कषय नहीं है। अवसा पर पुन छात्रों के प्र रिषयसद अरकरी, सुधीर विठ अर्द्धीजाई परक विकास मिक, म निरुध, विना सिखा, अनादीप प वीलय गुण, अमिह रीप, जदोन संक्षेप सारी रमकसि मिश्र त बाको संख्या में अर्द्धीजाई प्रारिखणारियों इषरिया थे।

### स्वतंत्रता सेनानियों को श्रद्धांजलि देने आज जुटेंगे कार्यकर्ता

अभिकल्प। स्वातंत्रता सेनानियों के स्मरण पर बालासौर पर इयाक न 2 अगत को सुबह 10 मने किंगु कर्णाल कोरिपु कोरिपु में कर्णाल-अ को धारण। नरत अरक कर्णाल कोरिपु के अरकन नरत निड कर्णाल कोरिपु पर मुक कर्णाल, नेवा इतः गीना कर्णाल, रणरणरुणरुण पर नि कर्णाल के सारी प्रारिखणारियों पर अने कर्णाल जने से एक कर्णाल इषरिया को अरकन को है।

## आवश्यकता

हरिभूमि अभिकल्प जिला कार्यालय के प्रसार मार्केटिंग में कार्य करने के लिए उम्मीदवारों, योग्य तथा अनुभवी या फेसल भुक्त य सुपरिवीज को सीप अवसरदाकारों है

उम्मीदवारों में निम्नलिखित क्षमता होना आवश्यक है-

- » 12 वीं या उच्चतर उत्तीर्ण होना चाहिए।
- » आयु 30 वर्ष से अधिक नहीं होनी चाहिए।
- » कपली द्वारा संघर्षित इवेंट में कार्य कर लगे तथा प्रबंधित करने हेतु नगर से बाहर भी या सरे।
- » उचित विनिय होमे में समाप्त हो।

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योग्यतानुसार पैसा देव होगा।

**कार्य का समय**  
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**मिलन का समय**  
सारे 5 घण्टे से 6 बजे तक

कार्यालय प्रमुख  
**हरिभूमि**

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## हिण्डालको इण्डस्ट्रीज लिमिटेड

(सामरी खान प्रभाग)

**रूपण**

सर्वसाधारण को सचित किया जाता है कि लखन प्रवावरण मंत्रालय, नई दिल्ली से उनके पत्र क्रमांक ज.11015/353/2007-IA.II(M) दिनांक 27.07.2007 तथा ज.11015/354/2007-IA.II(M) दिनांक 27.07.2007 के तहत हिण्डालको इण्डस्ट्रीज लिमिटेड के सामरी तथा कुदाग बरिस्ताईट खादराली के क्षमता विलान (0.50 मिलियन टन तथा 0.06 मिलियन टन बरिस्ताईट उत्पादन प्रतिवर्ष) हेतु पर्यावरणय स्वीकृति अनुमतिदित होकर प्राप्त हो चुकी है। इससे स्वीकृति पत्र की प्रतिलिपि छ.ग. पर्यावरण संरक्षण मंडल कार्यालय में उपलब्ध है एवं लन गई पर्यावरण मंत्रालय को वेबसाईट <http://envfor.nic.in> पर देखी जा सकती है।

धरदीव  
हिण्डालको इण्डस्ट्रीज लिमिटेड  
सामरी खान प्रभाग

बया। बावन वर्ष रिजर्विड फुलरों को मजदूरी मिले इस आंदोलन में भाग लेने कुशमुद्रम, नेयरा, एनटीपीसी, एचटीपीपी, बालको, निद्राशिक सहित सभी क्षेत्रों के लोगों ने भाग लिया जो मंटे तक चले हुए आंदोलन में अन्य सभी लोग उपस्थित थे।

इसलिए अगले कुछ दिनों में पुत्री किरण का विवाह 20 मई 1997 को तखतपुर स्थान अंतर्गत प्रेम अनेका निवासी रामनाराय के पुत्र राजेशप्रसाद पाठक के पुत्र के साथ हुआ था। विवाह के एक साल बाद ही किरण को दहेज के लिए प्रताड़ित किए जाने लगा।

पत्थलगंव/ धरतीसगढ़ प्रदेश के कर्नाला जिले एवं पूर्व मुजफ्फरी अजीत प्रमोद जोशी के सुपुत्र अमित जोशी का स्थानीय युवा कार्यकर्ताओं ने जन्म दिवस मनाया। पत्थलगंव के सामुदायिक स्मारक केन्द्र के चर्च में पहुंचकर खुदा काँच की कार्यकर्ताओं ने प्रीतपाल मार्टिया के शोभाय से फूल, विस्कुट, पेय को वितरण किया तथा काँच की

कमलेश्वरी का मुशकलमोम पूरे। अनीत जाँगी के जन्मदिन के उपसर् पर अस्मराल पहिलर में कल एम सिस्किट मितरण के एक हरमोमिन्द अचवाल मनीज अमरस्ट, एमि सादम, मिशामुद्दीन, सुदीन्द शेखराजी, शिव अवाल, प्रेदराम सिदार, अशोक रोहिला एवं अन्य सामोण कार्यकर्ता उपस्थित थे।

# गीता को कटघोरा का प्रभार

हा अधिकारी नीरिन बंडिच को है पदोन्नति मिलने वाली थी। लेकिन है। वे अभी स्थानांतरण के लिए मंदरा

कलेक्टर बनाए जाने के बाद से राजनांदगांव जलर कलेक्टर का पद विगत 2-3 माह से रिक्त था। श्री एंशमू कू मवा अंजोर परिचोजना के जलर लमावक के पर मर प्राचीण मवावक के पद पर प्रस्तावत प्रकीण विचार विचारन में प्रविनिपुक्ति पर थे। इस बीच 2004 बीच के एत प्रिनु आइएन अफसरों को राजपक कलेक्टर के पद पर पदस्था किया गया है। आईएसए अरु अरीरा को कटघोरा एवं पलत कुमारा को सारासगढ़ अनुविमगीय अधिकारी बनाया गया है।

## मलाई निगम के आयुक्त जए लगा रहे जोर

के दबाव नहीं कर रहे हैं। प्रदेश शासन द्वारा जारी आदेश के अनुसार राफने 198 बीच के अधिकारी आइके वीरामुख को राजनांदगांव का अपर कलेक्टर पदस्था किया गया है। डीडी सिंह को जरापुर

# खाद नहीं मिलने को लेकर कृषकों ने निकाली रैली

पत्थलगंव/ क्षेत्र के किसानों को खाद नहीं मिल रहा है, जिसको लेकर कल पत्थलगंव के किसान ने सा आश्वासन मिश्रा ने प्राचीण किसानों को लेकर एक रैली निकालकर का है। विचार अधिकारी श्री पन्ना से खाद किल्ला के सफा ने जलकारी मंगी व जमकर नारेबाजी की गई। पन्ना ने आश्वासन दिया कि वे एक-दो दिन में खाद पत्थलगंव में उपलब्ध कराई जावेगी। इस आश्वासन के परधान से रैली में उपस्थित सैकड़ों किसान राम से जाने को तैयार हुए।

खाद ही किसानों ने खाद की किल्ला के लिए व्यापारियों से अधिकारियों द्वारा साठगांव तक छोड़े यमों की डिली पर अधिकारी अखि मुंदे तमरा देव परे हे पुरारि को लेकर आ र कि सज रित पर हाथ मर फेले दामों में खरीदने को मजबूर हैं। रैली में मदन राम कुपूर, परमसाय कुजूर, मसराम पन्ना, बुजालद सरपंच, हेमराम पटेल, जोराम म्ज, सीधे बादव, टिकेश्वर बादव व अन्य किसान मौजूद थे। रैली की अनुयाई विचारण नेता द्वारा की गई।

# स जिला अध्यक्ष ने दौरा स्याओं की जानकारी ली

से अपनी भावनाओं से अवगत को ने पद को मज रखी कि क, कलर खेपी सिस्कि एव केन्द्रीय योजनायन दिया जाना। योजनायन मिलने से प्रत्येक 10 से 2000 रुपए तक का पैसा। पहलाई जलर की घोषणा एही। शिप सध महगाई भवते के अनुसार शेन चाँहिए तथा ही शशि केन्द्र को घोषणा के होना चाहिए। किस तरह से पी, परिवार को शिदा विभाग में अग्रिम जाती है उसी प्रकार हम फ्रील नी भी अग्रिम वेतन पुक्ति मिलनी

दूरे, भोरेलाल लखुन, शिवगंज सिंह, मुनेश्वर सिंह, हरिनाथरण साहू, प्रमोदपाल साहू, हेमनगर झाक रामलालू साहू, कृष्ण साहू, रामपाल साहू, राजेन्द्र पाणवार, पिलू राम सिंह, राजकुमार पन्ना, बहाल सिंह, पारसपति पन्ना, श्रीमती मानमति भगत, श्रीमती प्यारी टोमो, संदेव सिंह, श्रीमती कनकलला जायसंबल, श्रीमती सुमिता पाण्डेय, पी. डन, बादव मो इसलाम अंसारी, शमान मालपणसिंह, उदयपुर लाल में सुखराम साधन, हरिशंकर मुन्ना, मोहेलाल राजवाड़े, कलेक्टर सिंह, प्रमोद कुमार कश्यप, अलोडित टोमो, अमरनाथ पटेल, मेघकुमार बाबन, शंकर राम, अरुश्रीराम, श्रीमती इंदीलिनर टोमो, रामलाल सिंह, छोटेदाल दूरे, सोमराजप सिंह, सहपर सिंह, रामूराम, श्रीमती अमरशिवोरी टोमो, धनेश्वर सिंह, सुहन राम तथा अधिकारिक संस्था में हर क्लक में रिजक-शिथिकार उपस्थित थी। शिकको के प्रस्ताव की उचित कार्यवाही हेतु इसकी सूचना हेतु प्रदेश अध्यक्ष सुरेश मिश्रा एवं उप-प्रानाध्यक्ष बी. एस. सिंह को दे दी गई है। मुख्यमंत्री छत्तीसगढ़ शासन स्कूल शिक्षा मंत्री एवं आदिम जाति कल्याण मंत्री को सभी मामों पर की जायज बातें हे स्वीकृत करने हेतु अनुरोध पत्र लिखा गया है।

पंक्रम में मुख्य रूप से विशाखपुर में असाधित, पी. दुदे, एच. डी. जो. सिंह, ए. के. जेन, के. जर्ना स्वयंता श्रीवास्तव, ईशना गुर माल में प्रेमकाद सोनी, डी. एर डी भगत, सनातारण राम, मुलाय मोहनमय खंन, के. एन, राजपुर, जार, पी. सिंह, श्रीकाई लाल ने डी-मन्नाय साहू, शत्रुघन प्रसाद, नारायण कुमर, मारपण



**हिण्डालको इण्डरटीज लिमिटेड**  
(सामरी खान प्रभाग)

**सूचना**

सर्व सामान्य को सूचित किया जाता है कि प्रम एच पर्यटन मंत्रालय, नई दिल्ली से उनके पत्र क्रमांक नं- 11015/353/2007-IA II(M) दिनांक 27.07.2007 तथा नं- 11015/354/2007-IA II(M) दिनांक 27.07.2007 के तहत हिण्डालको इण्डरटीज लिमिटेड के सामरी तथा कुदाग बाक्साईट खदानों के क्षमता विलार (0.60 मिलियन टन तथा 0.65 मिलियन टन बाक्साईट खदान प्रतिवर्ष) हेतु पर्यावरणीय स्वीकृति अनुमोदित होकर प्राप्त हो चुकी है। उपरोक्त स्वीकृति पत्र की प्रतिलिपी उक्त पर्यटन मंत्रालय मंडल कार्यालय में उपलब्ध है एवं वन एवं पर्यावरण मंत्रालय की वेबसाईट <http://envfor.nic.in> पर भी देखी जा सकती है।

अधिसूचना  
हिण्डालको इण्डरटीज लिमिटेड  
सामरी खान प्रभाग

आम्बिकावानी  
3 अगस्त 2007

**Hindalco Industries Limited**  
**Samri Mines Division**

Annexure-I

**Actual Expenditure incurred in Environment Management Plan**

Total cost incurred for protection of Environment in Samri, Tatijharia & Kudag Bauxite mine of Hindalco Industries Limited of Chhattishgarh State during the FY 2022-23 (April-2022 to March-2023).

Sl. No.	Environment Protection Measure	Actual Cost (Lakh) FY 2022-23
01	Environment Monitoring	6.00
02	Greenbelt development	9.00
03	Reclamation/ rehabilitation of mined out area (Samri-9.187Ha., Kudag-1.9Ha., Tatijharia-3.397Ha.) Total- <b>14.484 Ha.</b>	43.452
<b>Total</b>		<b>58.452</b>

- ❖ Environment Monitoring Job has been out sourced to Anacon Laboratory, recognized by MoEF & NABL.
- ❖ One centralized nursery has been established at Samri mines for Samri, Tatijharia & Kudag lease.
- ❖ Reclamation of mined out land has been out sourced along with production. Average cost of reclamation considered @ 3.00 lakh per ha.

  
**Agent of Mines**  
Samri Mines Division  
Hindalco Industries Ltd

**Hindalco Industries Limited**  
**Samri Mines Division**

**Lease wise production data FY 2022-2023**

<b>Lease Name</b>	<b>Production (MT)</b>	<b>Mined out Area, ha.</b>	<b>Reclaimed area Ha.</b>
<b>Samri</b>	450950	14.853	9.187
<b>Kudag</b>	43800	2.544	1.900
<b>Tatijharia</b>	390300	14.318	3.397
<b>Total</b>	<b>885050</b>	<b>31.715</b>	<b>14.484</b>



**Agent of Mines**  
Samri Mines Division  
Hindalco Industries Ltd



Annexure-K

**REGIONAL OFFICE**  
**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**

Kanya Parisar Road, Near Govt. Aayurvedic Hospital, Namnakala Gangapur, Ambikapur (C.G.)  
e-mail:-rocecbamk@gmail.com

No. 1574/RO/TS/CECB/ 2022

Ambikapur, Dated: 29/11/2022

To,

**M/s Hindalco Industries Limited,**  
**(Tatijharia Bauxite Mine)**  
**Village- Tatijharia & Betapani,**  
**Tehsil - Samri,**  
**District - Balrampur-Ramanujanj (C.G.)**

Subject : Renewal of consent of the board under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974.

Ref. : Your online application no. 10523916 dated 27/07/2022 and subsequent correspondence ending dated 25/11/2022.

With reference to your above application, consents under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 are hereby renewed for period of Five years i.e. from 01/12/2022 to 30/11/2027, subject to the fulfillment of the terms and conditions incorporated in the water consent letter no. 6884/TS/CECB/2007 Raipur, dated: 24/12/2007 and air consent letter no. 6886/TS/CECB/2007 Raipur, dated: 24/12/2007 Raipur and subsequent renewal(s)/amendment(s) issued by the Board and additional conditions mentioned below.

This renewal of consent is valid for product & production capacity of: -

NAME	PRODUCTION CAPACITY
Mining of Bauxite Ore	4.0 Lakhs T./Annum (Four Lakhs Tonnes Per Annum)

**Additional Conditions**

**A. Water (Prevention and Control of Pollution) Act, 1974**

1. This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5938 dated 29/01/2018 as per self certificate submitted by authorized signatory **Shri Vijay Kumar Singh Chauhan, General Manager of M/s Hindalco Industries Limited (Tatijharia Bauxite Mine), Village- Tatijharia & Betapani, Teh.- Samri, Distt.- Balrampur-Ramanujanj (C.G.).**
2. Chhattisgarh Environment Conservation Board reserves the rights to revoke the Consent at any time for any violation/non-compliance.
3. In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.
4. In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.
5. Industry shall operate and maintain the effluent treatment system effectively and regularly. Industry shall ensure treated effluent quality within the standards prescribed by Board published in Gazette Notification dated 25.03.1988. Treated effluent shall be used for dust suppression, domestic use, irrigation, other useful purposes etc. Industry shall not discharge any treated/untreated effluent into the river or any other surface water bodies. No effluent shall be discharged outside of the mine premises in any circumstances; hence zero discharge condition shall be maintained all the time; failing which, this renewal of consent may be cancelled.
6. Industry shall ensure safe and scientific arrangement for disposal of all solid wastes. Excavated area shall be reclaimed scientifically.

Cont...../2



7. All internal roads shall be maintained properly. Industry shall maintain good house keeping within mine lease area. Industry shall ensure the transportation of ore in duly covered vehicles.
8. Industry shall use fly ash brick, fly ash blocks or fly ash based products in their construction/ repairing activities.
9. Industry shall submit monitoring report of effluent regularly.
10. Wide green belt of broad leaf local species shall be developed along the mine lease area. As far as possible maximum area of open spaces shall be utilized for plantation purposes.
11. Provision of water harvesting system should be provided in the industry premises.
12. Industry shall submit Environment statement to the Board as per provision of Environmental (Protection) Amendment Rule, 1993 for the previous year ending 31<sup>st</sup> March on or before 30<sup>th</sup> September every year.
13. Chhattisgarh Environment Conservation Board reserves the rights to revoke the Consent at any time for any violation/non-compliance.

### **B. Air (Prevention and Control of Pollution) Act, 1981**

1. This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5938 dated 29/01/2018 as per self certificate submitted by authorized signatory **Shri Vijay Kumar Singh Chauhan, General Manager of M/s Hindalco Industries Limited (Tatijharia Bauxite Mine), Village- Tatijharia & Betpani, Teh.- Samri, Distt.- Balrampur-Ramanujanj (C.G.)**.
2. Chhattisgarh Environment Conservation Board reserves the rights to revoke the Consent at any time for any violation/non-compliance.
3. In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.
4. In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.
5. The Industry shall operate & maintain the air pollution control system effectively & regularly. Effective steps shall be taken to control fugitive dust emission. Fixed type automatic water sprinkling system shall be installed at haul roads/other roads, ore stock yard etc. Dust suppression system (water sprinkling arrangement) shall be made more effective to ensure ambient air quality within prescribed limit in and around the mine area all the time.
6. Regular monitoring for the measurement of air pollutants level in ambient shall be carried out. Industry shall submit air quality monitoring reports to the Board regularly.
7. Industry shall ensure safe and scientific arrangement for disposal of all solid wastes. Excavated area shall be reclaimed scientifically.
8. All internal roads shall be maintained properly. Industry shall maintain good house keeping within mine lease area. Industry shall ensure the transportation of ore in duly covered vehicles.
9. Industry shall use fly ash brick, fly ash blocks or fly ash based products in their construction/ repairing activities.
10. Wide green belt of broad leaf local species shall be developed along the mine lease area. As far as possible maximum area of open spaces shall be utilized for plantation purposes.
11. Industry shall submit Environment statement to the Board as per provision of Environmental (Protection) Amendment Rule, 1993 for the previous year ending 31<sup>st</sup> March on or before 30<sup>th</sup> September every year.
12. Chhattisgarh Environment Conservation Board reserves the rights to revoke the Consent at any time for any violation/non-compliance.

Please acknowledge the receipt of this letter.

For and on behalf of  
**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**

**Regional Officer**  
Chhattisgarh Environment Conservation Board,  
Ambikapur