



NATIONAL ALUMINIUM COMPANY LIMITED
(A Government of India Enterprise)
PANCHPATMALI BAUXITE MINE
Mines & Refinery Complex
D A M A N J O D I – 763008
Dist. KORAPUT (ODISHA)
Ph-06853-268001, Fax-06853-268002/268003

Ref-NAL/MIN/CGM(Mines)/2026/53

Date: 27.06.2026

To,

The Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change, Regional Office,
A/3, Chandrasekaharpur, Bhubaneswar-751023

Sub:- Submission of Six monthly compliance status report on Environmental Clearance conditions for the period 1st October 2025 to 31st March 2026 in respect of Panchpatmali Central & North Block Bauxite Mine, NALCO.

Ref- (1) Env. Clearance Letter No. J-11015/49/2008-1A.II(M), Dtd. 20-2-2009 from MoEF&CC, GOI.

Dear Madam/Sir,

Please find enclosed herewith the six monthly compliance reports against the condition of above referred Environmental Clearances for the period 1st Oct 2025 to 31st March 2026 in respect of Panchpatmali Central & North block Bauxite Mine, NALCO. This is for your kind information and perusal please.

Thanking you,

Encl- As above

Copy-

-Additional Secretary (IA)
Ministry of Environment & Forests & Climate Change
Govt of India, Indira Paryavaran Bhawan, Aliganj,
Jorbagh Road, New Delhi-110 003.

-The Member Secretary, (Central)
State pollution Control Board, Odisha
A/118, Nilakantha nagar,
Bhubaneswar-751012

-The D.F.O.
Koraput Division, Koraput

Yours faithfully,

(P Mohanta)

Chief General Manager(Mines)

PURUSOTTAM MOHANTA
Chief General Manager (Mines)
Panchpatmali Bauxite Mines
NALCO, Damanjodi-763008

-for kind information

- for kind information

-for kind information

ANNEXURE-1

**STATUS OF COMPLIANCE TO THE CONDITIONS STIPULATED IN ENV. CLEARANCE
FOR BAUXITE PRODUCTION @ 6.825 MTPY WITH RESPECT TO PANCHPATMALI
CENTRAL & NORTH BLOCK BAUXITE MINE, NALCO**

(Ministry Letter No. J-11015/49/2008-IA. II(M) Dt. 20-02-2009)

Sl.No.	A. SPECIAL CONDITIONS	Status of Compliance as on 31.03.2026																								
i	The environmental clearance is in continuation to the environmental clearance earlier accorded to this project by the Ministry vide letter No. J-11015/09/2000-IA.II (M) dated 30.07.2004. The lease area shall remain unchanged.	The lease area remains unchanged. At present the lease area of Central and North Block = 1315.264 hectares.																								
ii	The project proponent shall obtain Consent to Establish from the State Pollution Control Board and effectively implement all the conditions stipulated therein.	The consent to establish for 6.825 MTPY production capacity for Central-North Block was obtained from SPCB, Odisha vide letter no. 16213/Ind-II-NOC-5666, DTD. 4-9-2013.																								
iii	The environmental clearance is subject to grant of forestry clearance. The project proponent shall obtain requisite prior forestry clearance under the Forest (Conservation) Act,1980 for working in the forest area	Forest Clearance exists vide MoEF&CC letter No- F.No.8-40/1993-FC(PT-I) Dt.15 th September 2014 for the entire forest land of 1294.283 ha of forest land.																								
Iv	The mining operations shall be confined to the hill tops only and restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out	It is revealed from a study by RAMKY (in Yr 2010) that the ground water table exists below 80 mtr. From the plateau top, where the mining activities are going on. As the Mining activities limited to 35 Mtrs only from the surface, there is no impact of Mining operation on the ground water / aquifers.																								
V	The project proponent shall ensure that no natural watercourse and / or water resources are obstructed due to any mining operations. Adequate measures shall be taken while diverting seasonal channels emanating from the mine lease, during the course of mining operation.	No Natural water course exists on hilltop/ plateau top. As such, mining operation which is confined to hill top does no way obstruct natural water course. No rain water from the mining area is allowed to flow down below the valley by constructing peripheral barriers.																								
vi	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	Top soil is being separately removed and is concurrently used in backfilling of mined out area. The top soil generated and utilized in reclamation for the last five years are as follows. <table><tr><th>Year</th><th>Top soil generated (MT)</th><th>Top soil utilized (MT)</th><th>Top soil stored (MT)</th></tr><tr><td>2021-22</td><td>115000</td><td>115000</td><td>Nil</td></tr><tr><td>2022-23</td><td>133490</td><td>133490</td><td>Nil</td></tr><tr><td>2023-24</td><td>171930</td><td>171930</td><td>Nil</td></tr><tr><td>2024-25</td><td>130030</td><td>130030</td><td>Nil</td></tr><tr><td>2025-26</td><td>64510</td><td>64510</td><td>Nil</td></tr></table>	Year	Top soil generated (MT)	Top soil utilized (MT)	Top soil stored (MT)	2021-22	115000	115000	Nil	2022-23	133490	133490	Nil	2023-24	171930	171930	Nil	2024-25	130030	130030	Nil	2025-26	64510	64510	Nil
Year	Top soil generated (MT)	Top soil utilized (MT)	Top soil stored (MT)																							
2021-22	115000	115000	Nil																							
2022-23	133490	133490	Nil																							
2023-24	171930	171930	Nil																							
2024-25	130030	130030	Nil																							
2025-26	64510	64510	Nil																							

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Panchpatmali Bauxite Mines
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vii	The overburden (OB) generated shall be concurrently backfilled. There shall be no external over burden dump. The entire backfilled area shall be progressively afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubaneswar on six monthly basis.	OB generated is being concurrently backfilled. Reclamation programme for the mined out area goes on concurrent to mining operation. The OB generated (including top soil) and utilized in reclamation for the last five years are as follows. <table><tr><th>Year</th><th>OB generated (MT)</th><th>OB utilized (MT)</th><th>OB stored (MT)</th></tr><tr><td>2021-22</td><td>798225</td><td>798225</td><td>Nil</td></tr><tr><td>2022-23</td><td>788300</td><td>788300</td><td>Nil</td></tr><tr><td>2023-24</td><td>800715</td><td>800715</td><td>Nil</td></tr><tr><td>2024-25</td><td>759305</td><td>759305</td><td>Nil</td></tr><tr><td>2025-26</td><td>699750</td><td>699750</td><td>Nil</td></tr></table> The plantation in the rehabilitated area is maintained till the vegetation becomes self-sustaining. Compliance status is submitted to MOEF every six months.	Year	OB generated (MT)	OB utilized (MT)	OB stored (MT)	2021-22	798225	798225	Nil	2022-23	788300	788300	Nil	2023-24	800715	800715	Nil	2024-25	759305	759305	Nil	2025-26	699750	699750	Nil
Year	OB generated (MT)	OB utilized (MT)	OB stored (MT)																							
2021-22	798225	798225	Nil																							
2022-23	788300	788300	Nil																							
2023-24	800715	800715	Nil																							
2024-25	759305	759305	Nil																							
2025-26	699750	699750	Nil																							
viii	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil and mineral dumps to prevent run off of water and flow of sediments directly into the water bodies. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. the drains shall be regularly desilted, particularly after the monsoon, and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, topsoil dumps and the mineral dumps to prevent run off of water and flow of sediments directly into the water bodies 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 garland drains and desilted at regular intervals	Siltation ponds of adequate size are provided to collect sediments from the mineral stock pile area near crusher house during rain through drains. Rain water accumulated in the sedimentation ponds cannot go out due to peripheral barrier and percolates down through porous mined out surface. The mine is a elongated strip of land with peripheral barriers on the western and eastern sides which prevent any rain water from going outside. Inside the mine sedimentation pits of adequate size have been kept which collect water through drains with natural gradient. Due to porous nature of the mined out surface, the rain water percolates down to recharge the ground water. There are no waste dumps or OB dumps as concurrent reclamation method has been adopted. The sedimentation pits are cleaned periodically to maintain the sump capacity to hold water. There are no active dumps and hence there is no question of washouts from dumps.																								
ix	Dimension of the retaining wall at the OB benches within the mine to check run-off and siltation should be based on the rainfall data.	The overburden material is concurrently reused in backfilling of mined out area. The runoff generated inside mining area cannot go out as there are in-situ peripheral barrier all around the mining area. All the runoff are diverted to the sedimentation tanks inside the mining area where the collected water percolates into the ground.																								
x	The project proponent shall develop a 7.5 m wide green belt in the safety zone all around the mining lease. In addition, plantation shall be raised in the backfilled and the reclaimed area, around void roads etc. by planting the native species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2500 plants per ha.	A green belt having minimum width of 7.5 mtr has been developed all around the Mined out area in the safety zone. This green belt is developed/ maintained 500M ahead of Mining operation. Native species like Jamun, Rose Apple, Guava, Mangos, Jackfruit, Tamarind, Karanj, etc are being planted at the rate of 2500 plants /ha for development of the green belt. In addition to that plantation has also been carried out in the backfilled/reclaimed area.																								

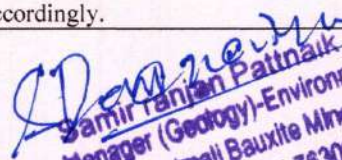
		As on 31.3.2026 the plantation carried out in different areas in <u>Central and North Block</u> are as follows. (i) Mined out area : 1,754,042 (ii) Other areas like Safety zone and other barren land(Hill slope area/Conveyor Corridor/Auxiliary Facilities Area/Water Supply Area/Power line Area/ Magazine Area): 399036 iii) Waste Dump: 9,520 (vi)Outside lease area: 1,415,598. Total trees planted in <u>Central and North Block as on 31.3.2026</u> is 3,578,196. The above mentioned plantation is inclusive of Miyawaki plantation in an area of 1 Ha with 10000 Nos of saplings.												
xi	Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as around crushing and screening plant, loading and unloading point and all transfer point. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling is being done using 06 no's of self-propelled mobile water tankers. Provision of PLC controlled Auto sprinkling system installed over Permanent haul roads (4.5 km). The AAQ quality monitoring is done every month. The monitoring locations are A1(Baiguda village) , A2(Bitiarguda Village), A3(Goudguda village), A4(Kakriguma village), A5(Upper Meeting village), A6(Near Main Haul Road Area), A7(Near Crusher HouseA8(Roof of the HEMM main building), A9(Roof of Panchpatmali Bhavan), A10(Near SMCP North Block). The latest results of ambient air analysis are given at Annexure-I.												
xii	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.	NALCO has been measuring water flow rate of perennial streams at the foot hill in 17 locations on monthly basis every year. The stream flow has been measured at 17 locations during every month. The locations are 1.Litiguda, 2.Jholaguda, 3.Bhitara Bhejaput, 4.Barigurha, 5.Kapsiput, 6.Litaputta, 7.Murdagurha, 8.Gaurhagurha, 9.Tenguligurha, 10.Kakriguma, 11.Tentulipadar, 12.Keler, 13.Kusumagurha, 14.Kirajhola, 15.Rangapani, 16.Pansaputa and 17.Balipeta. For 25-26 as on 31.03.2026, the results are given at Annexure-II. Previously it was done on quarterly basis and from last year it is being carried out on monthly basis.												
xiii	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	The plateau top, where the mining operation is confined, stands out about 300 mtr above the surrounding valley areas. The ground water exists at a depth of about 80mtr. At present, 3 no. of rain water harvesting reservoirs have been developed atop the mines. The capacity of the three nos of ponds are as follows. <table border="1"> <thead> <tr> <th>Sl No.</th><th>Description</th><th>Capacity of storage in cum.</th></tr> </thead> <tbody> <tr> <td>1</td><td>Pond no-1</td><td>19800</td></tr> <tr> <td>2</td><td>Pond no-2</td><td>23625</td></tr> <tr> <td>3</td><td>Pond no-3</td><td>10000</td></tr> </tbody> </table> Also, rooftop rainwater harvesting structures for the Administration Building, Mine Manager's Building and MVT centre has been completed by 2014 to augment ground water recharging. Further, the method of Mining & the peripheral barrier all around does not allow the storm water from within the mining area to go outside valley areas. The water thus trapped, percolates down & recharges the ground water. Further as per advice of CGWB, Bhubaneswar, a suitable agency (M/s Geoenvitech Research & Services Pvt Ltd , Bhubaneswar) was appointed for carrying out a hydro-geological study for suggesting measures for rain water harvesting and augmentation of ground water resources. The recommendations are implemented.	Sl No.	Description	Capacity of storage in cum.	1	Pond no-1	19800	2	Pond no-2	23625	3	Pond no-3	10000
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xiv	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and 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 the Ministry of Environment and Forest and its Regional Office, Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	The ground water level was monitored by M/s RAMKY (in Yr 2010) by construction of borewells. It was found that the ground water table exists at a great depth i.e. below 80 mtr. from the plateau top. The ground water quality monitoring is done during April, August, November and January every year. The monitoring locations are (15 nos) Metingi Village, Chhatamba Village, Jharhiapadar Village, Tentulipadar Village, Ichhapur Village, Mundagarhati Village, Bijaghati Village, Putraghati Village, Putraghati Village, Chararha Village, Kapsiput Village, Jambagurha Village, Shriguda Village, Kakiriguma Village, and Sorisha padar Village. The parameters being monitored are as per IS 10500:2012 specified for drinking water. For 25-26, the results are given at annexure-III. One no of piezometer has been constructed for monitoring of ground water level.												
xv	Appropriate mitigative measures shall be taken to prevent pollution of the Indravati River, the Vagabvalli river, Banadehar River and Kerandi River in consultation with the State Pollution Control Board.	Appropriate mitigative measures have been taken to prevent pollution of rivers in consultation with SPCB, Odisha. They have specified conditions in CTO to treat the waste water streams and not to discharge runoff from mining area into water bodies. The actions taken- (1) There is no mine drainage water generated at Mines (2) rain water (with sediment) is also not allowed to go out of Mining areas because of the insitu- peripheral barrier existing all around the mining pit. 21 check dams have been constructed to retain the washouts if any from the mining area going downhill and contaminating water bodies. (3) The rain water around stockpiles are diverted to sedimentation basins where solid particle settle down and water percolates into the ground. (4) Effluent from toilets are treated in septic tanks. (5) The mine being a zero discharge mine, has got adequate facility to treat wash water from Workshop & Canteen & the treated water is completely reused for dust suppression and plantation purpose and no waste water is discharged outside. As already explained, Further the perennial streams emanating from the Panchpatmali hill slopes are being monitored regularly and all parameters are within prescribed norms. As such in no way the mining operation affects the river basins which are any way situated at least 30 KM away..												
xvi	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) required for the project	Permission for drawal of surface water from Jholaguda streams upto 0.5MGD is available vide letter No. 15986, dtd.13-6-2018.												
xvii	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board	At present, 3 no. of rain water harvesting reservoirs have been developed atop the mines. The capacity of the three nos of ponds are as follows. <table border="1"> <thead> <tr> <th>Sl No.</th><th>Decription</th><th>Capacity of storage in cum.</th></tr> </thead> <tbody> <tr> <td>1</td><td>Pond no-1</td><td>19800</td></tr> <tr> <td>2</td><td>Pond no-2</td><td>23625</td></tr> <tr> <td>3</td><td>Pond no-3</td><td>10000</td></tr> </tbody> </table> Also, rooftop rainwater harvesting structures for the Administration Building, Mine Manager's Building and MVT centre has been completed by 2014 to augment ground water recharging.	Sl No.	Decription	Capacity of storage in cum.	1	Pond no-1	19800	2	Pond no-2	23625	3	Pond no-3	10000
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		Further, the method of Mining & the peripheral barrier all around does not allow the storm water from within the mining area to go outside valley areas. The water thus trapped, percolates down & recharges the ground water. Further as per advice of CGWB, Bhubaneswar , a suitable agency (M/s Geoenvitech Research & Services Pvt Ltd , Bhubaneswar) was appointed for carrying out a hydro-geological study for suggesting measures for rain water harvesting and augmentation of ground water resources. The recommendations are implemented.
xviii	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 within the lease up to the stockyard. The mineral transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded	Monitoring of exhaust emission of all the vehicles operating at mine is conducted once in six months through an outside agency authorized by SPCB, Odisha. Bauxite ore is transported in the mine area in an environmentally safe manner by limiting the speed limit of transporting equipment and also by maintaining proper road conditions.
xix	No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting has been stopped since April 2022. Whenever it will be done in future , it will be done during shift change over between 1.15PM to 2PM .No blasting will be done beyond day light hours .Further, controlled blasting will be practiced with use of NONELs for sequential blasting to reduce fly rocks, boulders & ground vibration.
xx	Drills shall either be operated with dust extractors or equipped with water injection system	All drills are operated with vacuum dust extraction system with provision of water injection for dust suppression.
xxi	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	All transfer points in crushing & Conveying system are provided with efficient dry fog system to suppress dust at source.
xii	Consent to operate shall be obtained from the State Pollution Control Board, Orissa prior to start of enhanced production from the mine.	At present Mine is operating with consent to operate for 6.825 MTPA production capacity vide order No. 3644/Ind-I-Con-92, Dtd. 19-03-2026/CONSENT ORDER NO.58, which is valid upto 31.3.2027.
xxiii	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation	The Mine & Refinery combined township exists 20KM away at Damanjodi where sewerage treatment plant is provided whereas The mine is operating a zero discharge system for effluents where all the waste water is treated, analyzed and reused for sprinkling on the haul road for dust suppression and plantation. Effluents from the Mechanical Workshop area is being channelized through well-designed oil-water separation tank where oil is collected and the clear water is collected in zero discharge sump. There is a canteen waste water disposal system (biological treatment unit) designed, constructed and maintained to treat the canteen waste water. All the treated waste water from canteen and HEMM workshop is used for horticulture & dust suppression.
xxiv	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and following accordingly.	For all eligible employees of Central & North Block, periodical medical examinations are done & records thereof maintained. During April 2025- March 2026, 396 nos of employees have undergone periodical medical testing. No occupational diseases have been detected so far.


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xxv	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. the housing may be in the form of temporary structures to be removed after the completion of the project.	No labour camp exists on plateau top. All construction laborers /workers come from Damanjodi & surrounding villages at the foothill of Panchpatmali hill.
xxvi	The project proponent shall take all precautionary measure during mining operation for conservation and protection of endangered flora and fauna found in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the fund so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forest and its Regional Office, Bhubaneswar.	A Site Specific Wildlife Management plan as prepared by NALCO has been approved by PCCF(Wildlife), Odisha, Bhubaneswar vide Memo No. 4011/1 WL(C) SSP-397/2013 Dt. 19th May 2014, On the basis of the above stated approval, DFO, Koraput had raised a demand note No.1838 Dt. 26-05-2014 for payment of Rs. 2011.50 lakhs. With reference to the above stated demand note, NALCO has made a payment of Rs. 2011.50 lakhs in Orissa CAMPA account in Corporation Bank, Lodhi Road, New Delhi through RTGS on Dt.04-06-2014. Besides the above, a total amount of Rs 7, 62, 85,312/- have been deposited in different phases as per demand letters of DFO,Koraput in Orissa CAMPA by NALCO towards Regional Wildlife Management Fund for implementation by State Forest Department. The conservation measures suggested are under process of implementation. The copy of action plan has been submitted to MoEF&CC vide letter No- NAL/MIN/GM(Mines)2017/677, Dtd. on 12-10-2017. The status of implementation of conservation measures are given in Annexure-IV.
xxvii	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar	A digital land-use map (shape file) as on 31.3.2024 has been submitted to MoEF&CC, Bhubaneswar on 18 th Nov 2024 vide mail.
xxviii	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure of approval.	Final mine closure plan shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure.
	GENERAL CONDITIONS	
i	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests	The user agency (NALCO) undertakes that there shall be no change in technology and scope of work without prior approval from MoEF.
ii	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	The user agency (NALCO) undertakes that there shall be no change in calendar plan including excavation, quantum of Bauxite, Waste/OB generation of work without prior approval from competent authority.
iii	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO ₂ & NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecological sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	At present 10 air quality monitoring stations are established in and around Mines based on the mentioned factors and measurements are being done once in every month for parameters as per the latest MOEF notification of September 2009. The location of monitoring stations has been fixed in consultation with SPCB, Odisha.

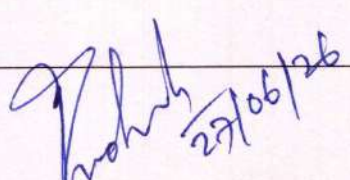
iv	Data on ambient air quality (RSPM, SPM, and SO ₂ & NO _x) should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six month.	Data on air quality is being collected once in every month. Records submitted to statutory authorities once in six months. The AAQ quality monitoring is done every month. The monitoring locations are A1(Baiguda village) , A2(Bitiarguda Village), A3(Goudguda village), A4(Kakriguma village), A5(Upper Meeting village), A6(Near Main Haul Road Area), A7(Near Crusher House), A8(Roof of the HEMM main building), A9(Roof of Panchpatmali Bhavan), A10(Near SMCP North Block). ambient air analysis for the period April 2025 to Mar 2026 are given at Annexure-I .
v	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water spraying on haul road is carried out both with fixed (4.5 km long) and mobile sprinklers (6 nos) . Loading points of crusher house is provided with dry fog system. One no of fog cannon has also been deployed in the stock pile area to suppress dust. Transportation of Bauxite ore is carried out through a cable belt conveyor of 14.6KM long, provided with hood all along.
vi	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs	Noise monitoring in work zone is taken up once in every quarter. Equipment selection is done keeping noise reduction features in view. Workers are provided with ear plugs /muffs. Besides ambient noise level is being monitored at 10 locations in and around the mine. Noise level monitoring for the period 2025-26 is available at annexure-V .
vii	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 th May, 1993 and 31 st December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	The mine is operating a zero discharge system for effluents where all the waste water is treated, analyzed and reused for sprinkling on the haul road for dust suppression and plantation. Effluents from the Mechanical Workshop area is being channelized through well-designed oil-water separation tank where oil is collected and the clear water is collected in zero discharge sump. There is a canteen waste water disposal system (biological treatment unit) designed, constructed and maintained to treat the canteen waste water. All the treated waste water from canteen and HEMM workshop is used for horticulture & dust suppression. The treated waste water from canteen and HEMM workshop area are analysed before being reused. The parameters are analysed every month. The analysis results for 2025-26 are available at Annexure-VI . The above treated water is completely reused without discharging outside.
viii	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed	All employees and contract workers are provided with protective devices. Regular training programmes are held in MVT center on health and safety aspects for contract workers as well as employees. For all eligible employees of Central & North Block, periodical medical examinations are done & records thereof maintained. During April 2025-March 2026, 396 nos of employees have undergone periodical medical testing. No occupational diseases have been detected so far.
ix	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report	A Separate Environmental Management Cell, being headed by Sr.Mgr(Geo)-Env. who is reporting to GM (SH&E) & GM(SH&E) is directly reporting to CGM(Mines), exists for management of environment.

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	directly to the Head of the Organization.																															
x	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar	Being a public sector, the system does not allow for creating a separate account for environmental protection measures. However adequate fund is provided under the budget of executing departments for installation and maintaining various pollution control measures. The fund earmarked for environmental protection measures is never diverted for any other purpose. Adequate fund is always allocated to meet the capital & recurring expenses to implement the environmental control measures inclusive of plantation. Many expenditures for Central and North Block and South Block on environment are carried out through common contracts. Hence the total expenditure will be reported jointly. The capital expenditure till date and the recurring expenditure for protection of environment at Panchpatmali (Central & North Block) Bauxite Mine for the last three years are as follows: a. Capital Cost for Environmental Pollution control incurred during 2025-26 as on 31.03.2026 - Rs. 38.16 Crore b. Recurring cost <table><tr><th>S. No</th><th>Activity</th><th>2023-24 (Rs)</th><th>2024-25 (Rs)</th><th>2025-26 (Rs)</th></tr><tr><td>1.</td><td>Backfilling and land reclamation*</td><td>62,960,586.87</td><td>59,788,134.00</td><td>512,681,674.00</td></tr><tr><td>2.</td><td>Environmental Pollution Control</td><td>65,81,220.00</td><td>70,40,589.00</td><td>90,31,685.00</td></tr><tr><td>3.</td><td>Plantation and Horticulture</td><td>87,44,999.00</td><td>12,397,646.00</td><td>10,347,174.00</td></tr><tr><td>4</td><td>Operation and maintenance of Water Sprinkling system & zero discharge system</td><td>9,62,991.00</td><td>31,92,809.00</td><td>35,36,928.00</td></tr><tr><td></td><td>Total</td><td>79,24,9796.44</td><td>82,419,179.00</td><td>53,55,97,461.00</td></tr></table> Note- Backfilling and land reclamation cost is calculated based on the proportionate cost for diesel incurred in handling of overburden material as compared to the total excavation.	S. No	Activity	2023-24 (Rs)	2024-25 (Rs)	2025-26 (Rs)	1.	Backfilling and land reclamation*	62,960,586.87	59,788,134.00	512,681,674.00	2.	Environmental Pollution Control	65,81,220.00	70,40,589.00	90,31,685.00	3.	Plantation and Horticulture	87,44,999.00	12,397,646.00	10,347,174.00	4	Operation and maintenance of Water Sprinkling system & zero discharge system	9,62,991.00	31,92,809.00	35,36,928.00		Total	79,24,9796.44	82,419,179.00	53,55,97,461.00
S. No	Activity	2023-24 (Rs)	2024-25 (Rs)	2025-26 (Rs)																												
1.	Backfilling and land reclamation*	62,960,586.87	59,788,134.00	512,681,674.00																												
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4	Operation and maintenance of Water Sprinkling system & zero discharge system	9,62,991.00	31,92,809.00	35,36,928.00																												
	Total	79,24,9796.44	82,419,179.00	53,55,97,461.00																												
xi	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work	The MoEF Regional Office shall be kept informed as required.																														
xii	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extnd full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports	NALCO undertakes that all co-operations will be extended to the officers of the Regional Office of the Ministry located at Bhubaneswar by furnishing requisite data, information/ monitoring reports.																														
xiii	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the	Six monthly report on the status of the implementation of the stipulated environmental safeguards is being submitted to MoEF, Govt. of India and State Pollution Control Board regularly.																														

	Ministry of Environment and Forests, its Regional Office Bhubaneswar, Central Pollution Control Board and State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically.	
xiv	A copy of clearance letter shall be marked to concerned Panchayat /local NGO, if any, from whom suggestion / representation has been received while processing the proposal	No such suggestions / representation has been received from the Panchayat / local NGO, while processing the clearance proposal.
xv	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office / Tahsildar's Office for 30 days	The clearance letter has been displayed at the required places.
xvi	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forest at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of the Ministry located at Bhubaneswar.	The accordance of Environmental clearance has been advertised in two local newspapers.
xvii	Plantation of saplings shall be carried out in the earmarked 33% greenbelt area as a part of the tree plantation campaign "Ek Ped Maa Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in)	Nalco has been registered under National Meri Life portal and the Tree plantation status has been uploaded along with Observation of World Environment day as Mission life action report.


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ANNEXURE-I
AMBIENT AIR QUALITY ANALYSIS AT PANCHPATMALI CENTRAL & NORTH BLOCK BAUXITE MINE
NALCO (2025-26)

Sl. No.	Monitoring station	Parameter	Norm	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25	Oct'25	Nov'25	Dec'25	Jan'26	Feb'26	Mar'26	Avg
1	A1 (Baiguda village)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	26.3	25.75	25.75	25.98	21.89	27.9	27.9	26.91	21.89	25.75	29.19	29.32	26.21
		PM10($100\mu\text{g} / \text{m}^3$)	100	47.5	50.79	48.9	53.28	40.86	48.96	43.83	53.07	40.86	50.79	50.79	51.01	48.39
		NRPM ($\mu\text{g} / \text{m}^3$)		51.8	38.86	32.6	35.52	34.79	32.6	37.83	35.38	34.79	33.86	33.86	34	36.32
		SPM($\mu\text{g} / \text{m}^3$)		99.3	84.64	81.51	88.79	75.65	81.56	81.66	88.45	75.65	84.64	84.64	85.01	84.29
		SO ₂ (80 $\mu\text{g} / \text{m}^3$)	80	8.6	6.13	6.13	6.18	6.13	5.72	6.24	7.69	6.13	6.13	7.35	7.39	6.65
		NO _x (80 $\mu\text{g} / \text{m}^3$)	80	15.4	11.24	11.24	11.33	9.63	9.23	11.74	11.74	9.63	11.24	10.03	11.24	11.14
		CO (2 mg /m ³)	2	0.43	0.5	0.48	0.53	0.4	0.48	0.43	0.53	0.4	0.5	0.5	0.51	0.47
2	A2 (Bhitargada Village)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	27.1	29.79	30.05	30.05	22.56	28.94	28.94	30.31	22.56	29.79	25.54	25.98	27.63
		PM10($100\mu\text{g} / \text{m}^3$)	100	49.5	51.34	53.85	51.78	40.73	50.35	42.81	54.32	40.73	51.34	51.34	52.23	49.19
		NRPM ($\mu\text{g} / \text{m}^3$)		53.4	29.63	31.08	29.89	34.55	29.63	36.53	31.35	34.55	29.63	29.63	30.15	33.34
		SPM($\mu\text{g} / \text{m}^3$)		102.9	80.97	84.93	81.67	75.28	79.98	79.34	85.67	75.28	80.97	80.97	82.37	82.53
		SO ₂ (80 $\mu\text{g} / \text{m}^3$)	80	9.4	6.89	6.89	6.95	5.67	6.08	5.7	6.18	5.67	6.89	6.08	7.01	6.62
		NO _x (80 $\mu\text{g} / \text{m}^3$)	80	17.2	11.94	12.04	12.04	9.95	9.15	11.33	11.33	9.95	11.94	9.55	11.94	11.53
		CO (2 mg /m ³)	2	0.51	0.51	0.53	0.51	0.41	0.5	0.42	0.51	0.4	0.51	0.51	0.52	0.49
3	A3 (Goudguda village)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	24.3	25.75	26.67	25.54	22.32	27.04	27.04	26.21	22.32	25.75	31.2	30.94	26.26
		PM10($100\mu\text{g} / \text{m}^3$)	100	45.8	47.67	45.57	47.26	46.63	49.95	48.28	46.56	46.63	45.76	47.47	45.18	46.90
		NRPM ($\mu\text{g} / \text{m}^3$)		49.1	43.07	41.17	42.7	38.71	35.61	35.8	42.07	38.71	41.35	42.89	40.82	41.00
		SPM($\mu\text{g} / \text{m}^3$)		94.9	90.74	86.75	89.97	85.34	85.56	84.08	88.64	85.34	87.11	90.35	86	87.90
		SO ₂ (80 $\mu\text{g} / \text{m}^3$)	80	8.4	7.33	7.33	7.29	6.95	5.31	6.98	7.07	6.95	7.35	6.51	7.26	7.06
		NO _x (80 $\mu\text{g} / \text{m}^3$)	80	14.6	12.04	12.47	11.94	9.63	9.63	12.25	12.25	9.63	12.04	10.39	12.04	11.58
		CO (2 mg /m ³)	2	0.42	0.47	0.47	0.47	0.42	0.49	0.48	0.47	0.46	0.45	0.47	0.45	0.46
4	A4 (Kakiriguma village)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	28.7	30.05	31.26	30.05	23.18	30.48	30.48	29.92	23.18	30.05	27.16	27.04	28.46
		PM10($100\mu\text{g} / \text{m}^3$)	100	50.4	67.81	73.25	53.73	45.82	52.82	47.95	51.45	45.82	67.81	68.1	67.81	57.73
		NRPM ($\mu\text{g} / \text{m}^3$)		54.2	50.87	54.95	54.94	21.39	20.53	21.09	52.6	21.39	50.87	51.09	50.87	42.07
		SPM($\mu\text{g} / \text{m}^3$)		104.6	118.68	128.21	108.67	67.2	73.35	69.04	104.05	67.2	118.68	119.19	118.68	99.80
		SO ₂ (80 $\mu\text{g} / \text{m}^3$)	80	10.2	6.13	6.13	6.13	5.72	8.17	5.67	7.32	5.72	6.13	7.39	6.13	6.74
		NO _x (80 $\mu\text{g} / \text{m}^3$)	80	17.3	12.44	12.94	12.44	10.03	10.03	11.99	11.99	10.03	12.44	10.07	12.44	12.01
		CO (2 mg /m ³)	2	0.52	0.67	0.67	0.53	0.45	0.52	0.47	0.53	0.45	0.67	0.68	0.67	0.57
5	A5 (Upper Meeting village)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	30.1	30.05	27.92	25.75	21.89	26.18	26.18	25.87	21.89	25.75	30.05	30.18	26.82
		PM10($100\mu\text{g} / \text{m}^3$)	100	51.9	60.38	63.36	51.44	42.62	47.25	48.04	51.66	42.62	49.46	51.44	49.68	50.82
		NRPM ($\mu\text{g} / \text{m}^3$)		55.6	54.31	56.09	45.53	40.48	35.78	37.61	45.73	40.48	43.78	45.53	43.97	45.41
		SPM($\mu\text{g} / \text{m}^3$)		107.5	114.7	119.45	96.97	83.1	83.04	85.65	97.39	83.1	93.25	96.97	93.65	96.23
		SO ₂ (80 $\mu\text{g} / \text{m}^3$)	80	11.7	8.99	8.99	5.31	6.13	5.31	6.18	6.16	6.13	5.31	6.13	5.33	6.81
		NO _x (80 $\mu\text{g} / \text{m}^3$)	80	18.4	14.04	13.05	12.04	9.63	9.23	12.49	12.49	9.63	12.04	9.63	12.04	12.06
		CO (2 mg /m ³)	2	0.63	0.6	0.6	0.51	0.42	0.47	0.48	0.51	0.42	0.49	0.51	0.49	0.51
6	A6 (Near Main Haul Road Area)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	38.2	25.75	29.79	30.05	25.75	30.91	30.91	29.79	25.75	30.05	26.09	25.54	29.05
		PM10($100\mu\text{g} / \text{m}^3$)	100	58.4	51.44	59.87	54.87	52.8	53.16	54.04	59.87	52.8	60.38	61.17	59.87	56.56
		NRPM ($\mu\text{g} / \text{m}^3$)		64.3	45.53	53.85	54.31	49.26	46.04	46.28	53.85	49.26	54.31	55.02	53.85	52.16
		SPM($\mu\text{g} / \text{m}^3$)		122.7	96.97	113.72	109.18	102.07	99.2	100.32	113.72	102.07	114.7	116.19	113.72	108.71
		SO ₂ (80 $\mu\text{g} / \text{m}^3$)	80	13.2	5.31	5.31	8.99	5.31	5.31	5.33	5.27	5.31	8.99	5.38	8.91	6.89
		NO _x (80 $\mu\text{g} / \text{m}^3$)	80	21.5	12.04	13.92	14.04	10.03	11.24	11.94	11.94	10.03	14.04	10.16	14.04	12.91
		CO (2 mg /m ³)	2	0.79	0.51	0.59	0.54	0.52	0.53	0.54	0.54	0.49	0.6	0.61	0.59	0.57

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Sl. No.	Monitoring station	Parameter	Norm	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25	Oct'25	Nov'25	Dec'25	Jan'26	Feb'26	Mar'26	Avg
7	A7 (Near Crusher House)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	39.4	34.05	34.64	33.48	27.66	34.47	34.47	34.64	27.66	34.05	31.49	31.63	33.14
		PM10($100\mu\text{g} / \text{m}^3$)	100	59.6	68.45	67.06	61.65	63.53	62.31	65.48	62.59	63.53	68.45	68.45	68.74	64.99
		NRPM ($\mu\text{g} / \text{m}^3$)		65.2	78.4	76.81	85.66	69	61.24	65.55	82.95	69	78.4	78.4	78.73	74.11
		SPM($\mu\text{g} / \text{m}^3$)		124.8	146.85	143.86	147.31	132.54	123.55	131.03	145.54	132.54	146.85	146.85	147.48	139.10
		SO ₂ ($80 \mu\text{g} / \text{m}^3$)	80	13.7	8.51	8.51	8.58	6.48	8.1	6.65	9.07	6.48	8.51	9.32	8.54	8.54
		NO _x ($80\mu\text{g} / \text{m}^3$)	80	20.3	15.91	16.19	13.24	10.34	11.94	14.17	14.17	10.34	15.91	10.34	15.91	14.06
		CO (2 mg / m ³)	2	0.76	0.68	0.67	0.61	0.63	0.62	0.65	0.61	0.69	0.68	0.68	0.68	0.66
8	A8 (Roof of the HEMM main building)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	32.4	30.05	30.57	29.79	26.18	26.61	26.61	30.18	26.18	30.05	34.34	34.64	29.80
		PM10($100\mu\text{g} / \text{m}^3$)	100	54.1	57.11	53.64	50.33	49.09	47.25	55.09	54.6	49.09	54.82	57.11	55.3	53.13
		NRPM ($\mu\text{g} / \text{m}^3$)		58.7	61.17	57.45	53.91	47.25	47.25	39.32	56.71	47.25	58.72	61.17	59.23	54.01
		SPM($\mu\text{g} / \text{m}^3$)		112.8	118.28	111.09	104.24	96.34	94.51	94.41	111.31	96.34	113.55	118.28	114.53	107.14
		SO ₂ ($80 \mu\text{g} / \text{m}^3$)	80	12.8	9.4	9.4	9.32	5.72	7.35	5.98	8.62	5.72	9.4	8.58	9.48	8.48
		NO _x ($80\mu\text{g} / \text{m}^3$)	80	18.3	13.24	13.47	13.13	10.83	9.63	16.12	16.12	10.83	13.24	10.43	13.24	13.22
		CO (2 mg / m ³)	2	0.62	0.57	0.53	0.5	0.49	0.47	0.55	0.5	0.47	0.54	0.57	0.55	0.53
9	A9 (Roof of Panchpatmali Bhavan)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	31.9	34.34	34.19	32.19	23.18	29.19	29.19	34.94	23.18	34.34	30.18	30.05	30.57
		PM10($100\mu\text{g} / \text{m}^3$)	100	53.4	60.56	54.7	54.94	57.23	52.99	56.01	55.9	57.23	50.87	51.09	50.87	54.65
		NRPM ($\mu\text{g} / \text{m}^3$)		56.2	59.53	55.62	55.86	46.24	44.39	50.75	56.83	46.24	51.72	52.21	51.72	52.28
		SPM($\mu\text{g} / \text{m}^3$)		109.6	120.09	110.32	110.8	103.46	97.38	106.76	112.74	103.46	102.59	103.3	102.59	106.92
		SO ₂ ($80 \mu\text{g} / \text{m}^3$)	80	12.3	8.58	8.58	7.35	6.13	8.17	6.18	9.56	6.13	7.35	9.44	7.35	8.09
		NO _x ($80\mu\text{g} / \text{m}^3$)	80	17.2	15.25	16.38	14.04	11.24	10.03	13.47	13.47	11.24	16.45	11.28	16.45	13.88
		CO (2 mg / m ³)	2	0.68	0.6	0.54	0.54	0.57	0.44	0.56	0.54	0.57	0.5	0.51	0.5	0.55
10	A10 (Near SMCP North Block)	RPM ($\mu\text{g} / \text{m}^3$)														
		PM 2.5($60\mu\text{g} / \text{m}^3$)	60	28.4	34.34	34.49	31.76	24.47	27.24	27.24	35.88	24.47	34.34	34.19	34.49	30.94
		PM10($100\mu\text{g} / \text{m}^3$)	100	51.3	50.87	60.82	52.23	52.72	48.22	58.12	63.28	52.72	58.23	60.3	58.48	55.61
		NRPM ($\mu\text{g} / \text{m}^3$)		53.4	51.72	59.78	57.24	51.72	51.28	50.41	62.2	51.72	57.24	59.27	57.48	55.29
		SPM($\mu\text{g} / \text{m}^3$)		104.7	102.59	120.6	115.47	104.44	99.5	108.53	125.48	104.44	115.47	119.57	115.97	111.40
		SO ₂ ($80 \mu\text{g} / \text{m}^3$)	80	10.2	7.35	7.35	8.58	5.72	6.08	5.82	7.69	5.72	8.58	7.32	8.62	7.42
		NO _x ($80\mu\text{g} / \text{m}^3$)	80	18.5	16.43	15.31	15.25	10.83	9.55	14.68	14.68	10.83	15.25	10.39	15.25	13.91
		CO (2 mg / m ³)	2	0.66	0.5	0.5	0.52	0.52	0.48	0.58	0.52	0.52	0.58	0.6	0.58	0.55

Sr. Manager (Geology)-Environment
Panchpatmali Bauxite Mine
NALCO, Damanjodi-763008

27/6/26

Dr ASHUTOSH ROUL
General Manager (S,H&E)
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ANNEXURE-II
FLOW RATES OF SPRINGS AROUND PANCHPATMALI CENTRAL & NORTH BLOCK
BAUXITE MINE (2025-26)

Stream water Quality Analysis April 2025

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litigoda	Jholagoda	Bhitara Bhejaput	Farigucha	Kapaiput	Litaputta	Mordagurha	Gauragurha	Tengurha	Kakirgum	Tentolipadar	Kaler	Kusumagurha	Kirajhola	Rangapani	Pansapota	Balipeta
1	Temp (°C)	33 ⁰ C	32 ⁰ C	32 ⁰ C	33 ⁰ C	34 ⁰ C	34 ⁰ C	32 ⁰ C	33 ⁰ C	34 ⁰ C	34 ⁰ C	32 ⁰ C	32 ⁰ C	34 ⁰ C	34 ⁰ C	33 ⁰ C	33 ⁰ C	32 ⁰ C
2	pH Value	6.8	6.8	6.8	6.8	6.8	6.9	6.9	6.8	6.8	6.9	6.9	6.9	6.8	6.8	6.8	6.8	6.9
3	Dissolve Oxygen, mg/l	4	4	4	4.2	4.1	4	4	3.8	4	4	4	4.1	4.2	4.1	4.1	4	4
4	Total Dissolved Solids, mg/l	3	3	3.4	3	3	3.2	3.2	3.2	3.3	3	3.1	3.2	3.2	3.2	3.2	3.2	3.2
5	Total Hardness, (as CaCO ₃), mg/l	20	20	28	28	24	28	20	16	20	24	24	20	24	20	20	24	24
6	Suspended solids mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	B.O.D mg/l 3 days at 27°C	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
8	Nitrate (as NO ₃), mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
9	Chloride as Cl - mg/l	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
10	Sulphate (as SO ₄), mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
11	Calcium (as Ca), mg/l	6	6	6	5	5	6	6	6	6	8	8	8	6	6	6	6	10
12	Magnesium (as Mg), mg/l	1.3	1.2	3.1	1.9	2.6	3.1	1.2	<0.243	1.2	0.972	0.972	<0.243	2.1	1.2	1.2	1.9	<0.243
13	Turbidity, (N.T.U.)	2	4	6.5	5	2.6	2.2	2.1	2.4	2.2	6	5.5	5.9	4	6.1	6.5	2	8.4
14	Fluoride as F, mg/l	<0.1	<0.1	<0.1	<0.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0	<0.1	<0.1	<0.1	<0.1	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Mercury (as Hg), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
18	Lead (as Pb), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
19	Cadmium (as Cd), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Chromium (as Cr ⁺⁶), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Copper (as Cu), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
24	STREAM FLOW RATE (m ³ /sec)	3.752	1.161	0.557	0.887	1199	0.787	1.657	1.68	0.592	1.188	0.369	1.076	0.584	0.71	0.799	0.448	0.288

(Signature)
Sr. Manager (Geology)-Environment
Panchpatmali Bauxite Mine
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Dr ASHUTOSH ROUL
General Manager (S.H&E)
Panchpatmali Bauxite Mines
NALCO, Damaniodi-763008

Stream water Quality Analysis May 2025

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejaput	Barigucha	Kapsiput	Litaputta	Mordaraha	Gaurahada	Tenguligaha	Kakirguma	Tentulipadar	Kaler	Kusumagurha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.4	24.1	25	25.2	24.8	24.1	24.6	25.3	25.1	25.1	24.8	24.7	24.9	25.1	25.3	24.6	24.2
2	pH Value	6.5	6.63	6.62	6.72	6.62	6.78	6.7	6.81	6.63	6.63	6.67	6.72	6.8	6.74	6.7	6.81	6.69
3	Dissolve Oxygen, mg/l	6.8	6.7	6.7	6.7	6.6	6.8	6.3	6.7	6.7	6.7	6.9	6.8	6.7	6.5	6.4	6.3	6.7
4	Total Dissolved Solids, mg/l	28	28	20	24	34	30	26	34	42	42	40	30	34	26	22	24	40
5	Total Hardness, (as CaCO ₃), mg/l	22	20	11	22	32	29	11	22	36	36	29	29	22	7	4	11	25
6	Suspended solids mg/l	4	4	4	<2.5	3.2	<2.5	<2.25	4	6	6	<2.5	6	4	<2.5	4	<2.5	<2.5
7	B.O.D mg/l 3 days at 27°C	3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	0.259	<0.05	0.574	<0.05	1.07	<0.05	0.62	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl ⁻ , mg/l	6	8	6	4	4	6	4	4	6	4	6	4	4	6	6	6	4
10	Sulphate (as SO ₄), mg/l	1.3	1.4	1	1.4	3.6	2.4	1.1	3.3	<1.0	1.6	3.9	3.4	1.2	2.8	3.3	6.5	3.7
11	Calcium (as Ca), mg/l	4.3	4.3	2.8	4.3	4.3	5.7	2.8	4.3	7.2	7.2	5.7	8.6	5.7	<1.0	<1.0	1.4	4.3
12	Magnesium (as Mg), mg/l	2.72	2.72	<1.0	2.72	5.15	3.54	<1.0	2.72	4.37	4.37	3.54	1.79	1.84	1.7	<1.0	1.79	3.45
13	Turbidity, (N.T.U.)	1	0.6	4.2	3	1	0.9	2.2	2	2.8	2.8	1.6	0.8	1.4	3.3	1.5	0.8	3.8
14	Fluoride as F ⁻ , mg/l	0.1	0.13	<0.1	<0.1	<0.1	<0.1	0.11	0.5	0.16	0.16	<0.1	0.8	<0.1	0.3	0.6	<0.1	0.12
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	2.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Chromium (as Cr ⁺⁺⁺), mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.5	0.4	0.75	0.7	0.5	0.4	0.21	0.63	0.72	0.72	0.66	0.52	0.7	0.72	0.39	0.64	0.71
24	STREAM FLOW RATE (m ³ /sec)	3.804	1.198	0.555	0.882	1.446	0.833	1.602	1.59	0.644	1.235	0.364	0.721	0.636	0.765	0.824	0.287	0.824

Sr. Manager (GEOLOGY)-Environment
Panchpatmali Bauxite Mine
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Stream water Quality Analysis June 2025

SL.		Sampling Station Code																
NO	Parameters	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejaput	Barigucha	Kapiput	Litaputta	Mordaguch a	Gauahat a	Tengligu ha	Kakirum a	Tentulpad ar	Keler	Kusumagur ha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.1	24.2	24.4	25	24.8	24.6	24.8	25	25.1	25	25	24.8	24.9	24.9	24.2	25	25.1
2	pH Value	6.9	6.8	6.9	6.9	6.71	6.69	6.81	6.9	6.8	6.8	6.9	6.71	6.7	6.7	6.28	6.7	6.71
3	Dissolve Oxygen, mg/l	6.6	6.8	6.4	6.7	6.7	6.8	6.8	6.7	6.4	6.4	6.5	6.4	6.7	6.9	6.9	6.7	6.7
4	Total Dissolved Solids, mg/l	26	32	20	32	40	44	30	36	26	20	24	42	32	32	28	36	50
5	Total Hardness, (as CaCO ₃), mg/l	24	28	12	24	36	28	28	20	8	40	12	28	24	24	16	36	40
6	Suspended solids mg/l	4	<2.5	<2.5	4	4	<2.5	4.4	4	<2.5	4	<2.5	4	1.4	1.4	1	4.4	1.9
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	0.574	<0.05	1.07	<0.05	0.62	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl - mg/l	8	6	4.6	4	6	6	4	4	6	6	6	4	6	6	6	12.01	8
10	Sulphate (as SO ₄), mg/l	1.3	3.2	1	3.6	<1.0	4.1	4.2	1.4	2.4	3.8	6.4	4	1.4	1.4	1	4.4	1.9
11	Calcium (as Ca), mg/l	6.4	4.8	2.8	4.8	6.4	6.4	8	6.4	<1.0	<1.0	3.2	4.8	4.8	4.8	4.8	4.8	8
12	Magnesium (as Mg), mg/l	1.94	3.88	<1.0	2.72	5.15	3.54	<1.0	2.72	1.94	<1.0	<1.0	3.88	2.91	2.91	<1.0	5.83	4.86
13	Turbidity (N.T.U.)	0.42	<0.1	2	2	2	1	0.9	1	3	1	0.8	3	1	1	4	1	3
14	Fluoride as F, mg/l	0.12	<0.1	0.11	0.49	0.18	<0.1	0.82	<0.1	0.3	0.49	<0.1	0.14	0.1	0.2	<0.1	<0.1	0.2
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	2.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Chromium (as Cr ³⁺), mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.38	0.4	0.21	0.61	0.7	0.6	0.51	0.7	0.62	0.39	0.64	0.69	0.49	0.49	0.75	0.49	0.8
24	STREAM FLOW RATE (m ³ /sec)	3.789	1.895	0.568	0.892	1.448	0.843	1.598	1.594	0.648	1.238	0.372	0.721	0.639	0.768	0.829	0.281	0.827

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Stream water Quality Analysis July 2025

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejaput	Barigorha	Kapsiput	Litaputta	Mordagurha	Gaurahad	Tenguligurha	Kakirgum	Tentulipadar	Kaler	Korumagurha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.4	25.1	25.2	24.8	25.18	24.1	24.1	24.8	25.3	25.1	24.8	24.7	24.9	25.1	25.3	24.6	24.2
2	pH Value	6.72	6.62	6.72	6.72	6.63	6.63	6.78	6.76	6.81	6.72	6.67	6.72	6.83	6.74	6.71	6.81	6.69
3	Dissolve Oxygen, mg/l	6.8	6.8	6.7	6.7	6.7	6.7	6.8	6.6	6.7	6.7	6.9	6.8	6.7	6.5	6.4	6.3	6.7
4	Total Dissolved Solids, mg/l	50	50	24	34	42	28	34	26	34	42	42	30	34	26	26	24	40
5	Total Hardness, (as CaCO ₃), mg/l	48	40	24	32	32	20	32	12	22	36	32	28	20	8	20	12	24
6	Suspended solids mg/l	4	6	<2.5	<2.5	6	<2.5	<2.25	<2.5	4	6	<2.5	6	4	<2.5	4	<2.5	<2.5
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	0.259	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl ⁻ , mg/l	18.01	16.01	12.01	10.01	10.01	10.01	8	6	6	6	6	6	6	6	10.01	6	4
10	Sulphate (as SO ₄), mg/l	2.9	6.5	2.5	5.3	1.8	1.68	3.2	1.65	3.6	<1.0	3.9	3.4	1.23	2.8	3.3	6.52	3.7
11	Calcium (as Ca), mg/l	12.8	12.8	4.8	4.8	8	4.8	6.4	4.8	4.8	8	6.4	9.6	6.4	<1.0	<1.0	3.2	4.8
12	Magnesium (as Mg), mg/l	3.88	1.94	<1.0	4.86	2.91	1.94	<1.0	2.72	2.43	3.88	3.88	<1.0	1.45	1.94	<1.0	<1.0	2.91
13	Turbidity (N.T.U.)	1	0.6	3	1	2.8	0.6	0.9	1	2	2	1.6	0.8	1.4	3.3	1.5	0.8	3.8
14	Fluoride as F ⁻ , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	0.5	0.35	0.16	<0.1	0.8	<0.1	0.3	0.6	<0.1	0.12
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	2.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Chromium (as Cr ⁺⁺), mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.5	0.4	0.75	0.7	0.72	0.4	0.41	0.21	0.52	0.65	0.66	0.52	0.62	0.72	0.31	0.64	0.62
24	STREAM FLOW RATE (m ³ /sec)	3.804	1.198	0.555	0.882	1.446	0.833	1.602	1.59	0.644	1.235	0.364	0.721	0.636	0.765	0.824	0.287	0.824

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Stream water Quality Analysis August 2025

SL.		Sampling Station Code																
NO	Parameters	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejaput	Barigurha	Kapsiput	Litaputta	Mordagurha	Gauraguda	Tenguligurha	Kakirgum	Tentulipad	Kaler	Kuvomagurha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.9	24.9	24.8	24.8	24.8	25.1	25	24.8	25.5	24.9	25	24.9	24.8	25.1	24.8	24.9	24.8
2	pH Value	6.81	6.42	6.38	6.19	6.41	8.13	6.64	7.45	8.01	6.76	6.76	6.7	6.9	6.8	6.8	6.7	6.8
3	Dissolve Oxygen, mg/l	6.7	6.6	6.9	6.4	6.8	6.8	6.7	6.8	6.9	6.8	6.2	6.4	6.7	6.8	6.9	6.4	6.7
4	Total Dissolved Solids, mg/l	48	30	24	24	16	34	30	36	40	20	20	32	36	30	30	40	20
5	Total Hardness, (as CaCO ₃), mg/l	40	28	12	16	12	28	8	28	32	12	12	28	24	12	24	16	12
6	Suspended solids mg/l	<2.5	<2.5	6	<2.5	<2.5	<2.5	<2.5	<2.5	4	<2.5	<2.5	6	4	3.6	4	4.2	<2.5
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	0.48	<0.05	<0.05	<0.05	0.41	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl- mg/l	6	4	2	4	4	2	2	2	2	4	2	4	6	6	10.01	4	6
10	Sulphate (as SO ₄), mg/l	1.9	1.71	<1.0	2.1	<1.0	3.4	2.64	2.4	<1.0	1.9	<1.0	3.2	1.24	1.9	3.2	4.1	6.52
11	Calcium (as Ca), mg/l	3.2	4.8	3.2	4.8	3.2	6.4	1.6	8	9.6	1.6	1.6	11.2	4.8	<1.0	6.4	3.2	3.2
12	Magnesium (as Mg), mg/l	1.94	2.91	<1.0	<1.0	<1.0	2.91	<1.0	1.94	1.94	1.94	1.94	<1.0	2.91	2.91	1.94	1.94	2.13
13	Turbidity (N.T.U.)	0.5	0.7	5	2	1	1	1	2	2	2.8	<0.1	0.7	1.5	3	1	3	0.7
14	Fluoride as F, mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	<0.1	0.28	0.48	0.12	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	0.001	<0.001	0.003	0.002	0.005	0.003	0.001	0.001	0.004	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	0.007	<0.005	<0.005	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Chromium (as Cr ⁶⁺), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	1	1.4	0.12	0.9	0.5	0.2	0.5	0.5	0.6	0.3	0.61	0.5	0.62	0.5	0.62	0.62	0.32
24	STREAM FLOW RATE (m ³ /sec)	3.802	1.196	0.841	0.882	1.441	0.846	1.601	1.59	8.01	6.76	6.76	6.7	6.9	6.8	6.8	6.7	6.8

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Stream water Quality Analysis September 2025

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litigoda	Jholagoda	Bhitara Bhejaput	Barigucha	Kapsiput	Litaputta	Murdagurha	Gaurhagurha	Tenguligurha	Kakirgumra	Tentulipadar	Keler	Kusumagurha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	25.1	24.9	25	25.2	24.7	24.9	25.2	25	24.8	25	25	24.9	24.9	24.9	24.8	24.9	24.8
2	pH Value	6.88	6.51	6.51	6.22	6.4	8.16	6.7	7.5	8.11	6.81	6.8	6.8	6.72	6.78	6.81	6.7	6.72
3	Dissolve Oxygen, mg/l	6.7	6.5	6.8	6.5	6.7	6.8	6.8	6.7	6.9	6.8	6.4	6.4	6.8	6.8	6.7	6.5	6.8
4	Total Dissolved Solids, mg/l	50	32	24	26	18	36	32	36	34	22	22	32	36	30	32	42	28
5	Total Hardness, (as CaCO ₃), mg/l	36	32	12	20	12	32	12	24	32	16	16	24	24	12	24	20	12
6	Suspended solids mg/l	<2.5	<2.5	6	<2.5	<2.5	<2.5	<2.5	<2.5	4	<2.5	<2.5	6	4.2	3.6	4	4.2	<2.5
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.37	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl ⁻ , mg/l	4	6	4	4	6	4	2	2	2	2	2	4	6	6	12.01	4	6
10	Sulphate (as SO ₄), mg/l	2.2	1.9	<1.0	2.6	<1.0	4.1	3	2.64	<1.0	1.1	1.2	3	1.23	1.9	3.4	4.4	7.1
11	Calcium (as Ca), mg/l	6.4	6.4	1.6	3.2	3.2	6.4	3.2	6.4	11.2	3.2	3.2	8	6.4	1.6	6.4	4.8	3.2
12	Magnesium (as Mg), mg/l	4.86	3.88	1.94	2.91	<1.0	3.88	<1.0	1.94	<1.0	1.94	1.94	<1.0	1.94	1.94	1.94	1.94	2.13
13	Turbidity, (N.T.U.)	0.4	0.7	5.4	2.2	1.2	1	1.4	2	2	3	<0.1	0.7	1.6	3	1	3	<0.1
14	Fluoride as F ⁻ , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.28	<0.1	0.21	0.51	0.14	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Chromium (as Cr ⁶⁺), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.9	1.3	0.16	0.9	0.5	0.22	0.5	0.7	0.84	0.4	0.72	0.52	0.64	0.53	0.71	0.74	0.44
24	STREAM FLOW RATE (m ³ /sec)	3.805	1.189	0.821	0.885	1.409	0.849	1.601	1.59	1.12	1.234	0.394	0.782	0.648	0.772	0.882	0.848	0.388

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Stream water Quality Analysis October 2025

SL.		Sampling Station Code																
NO	Parameters	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejagut	Baripuha	Kapiput	Litapotta	Murdagutha	Gaurhaguda	Tenguligutha	Kakirguma	Tantulipadar	Kaler	Kusumagutha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	25.1	24.9	25	25.2	24.7	24.9	25.2	25	24.8	25	25	24.9	24.9	24.9	24.8	24.9	24.8
2	pH Value	6.88	6.51	6.51	6.22	6.4	8.16	6.7	7.5	8.11	6.81	6.8	6.8	6.72	6.78	6.81	6.7	6.72
3	Dissolve Oxygen, mg/l	6.7	6.5	6.8	6.5	6.7	6.8	6.8	6.7	6.9	6.8	6.4	6.4	6.8	6.8	6.7	6.5	6.8
4	Total Dissolved Solids, mg/l	50	32	24	26	18	36	32	36	34	22	22	32	36	30	32	42	28
5	Total Hardness, (as CaCO ₃), mg/l	36	32	12	20	12	32	12	24	32	16	16	24	24	12	24	20	12
6	Suspended solids mg/l	<2.5	<2.5	6	<2.5	<2.5	<2.5	<2.5	<2.5	4	<2.5	<2.5	6	4.2	3.6	4	4.2	<2.5
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.37	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl - mg/l	4	6	4	4	6	4	2	2	2	2	2	4	6	6	12.01	4	6
10	Sulphate (as SO ₄), mg/l	2.2	1.9	<1.0	2.6	<1.0	4.1	3	2.64	<1.0	1.1	1.2	3	1.23	1.9	3.4	4.4	7.1
11	Calcium (as Ca), mg/l	6.4	6.4	1.6	3.2	3.2	6.4	3.2	6.4	11.2	3.2	3.2	8	6.4	1.6	6.4	4.8	3.2
12	Magnesium (as Mg), mg/l	4.86	3.88	1.94	2.91	<1.0	3.88	<1.0	1.94	<1.0	1.94	1.94	<1.0	1.94	1.94	1.94	1.94	2.13
13	Turbidity (N.T.U.)	0.4	0.7	5.4	2.2	1.2	1	1.4	2	2	3	<0.1	0.7	1.6	3	1	3	<0.1
14	Fluoride as F ₂ , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.28	<0.1	0.21	0.51	0.14	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Chromium (as Cr ^{VI}), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.9	1.3	0.16	0.9	0.5	0.22	0.5	0.7	0.84	0.4	0.72	0.52	0.64	0.53	0.71	0.74	0.44
24	STREAM FLOW RATE (m ³ /sec)	3.805	1.189	0.821	0.885	1.409	0.849	1.601	1.59	1.12	1.234	0.394	0.782	0.648	0.772	0.882	0.848	0.388

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Stream water Quality Analysis November 2025

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejapota	Barigurha	Kapsipota	Litaputta	Murdagurha	Gourhagurha	Tenguligurha	Kakirgurha	Tentulipadar	Keler	Kuvumagurha	Kirajhola	Rangapani	Pansapota	Balipeta
1	Temp (°C)	23.4	24.2	24.9	24.4	24.2	24	24.2	24.3	24.2	24.9	25	24.4	24.7	24.4	24.7	24.2	24.4
2	pH Value	6.81	6.72	6.71	6.71	7.1	7.8	6.84	6.72	7.82	6.92	7.82	6.92	6.82	6.92	6.71	6.91	6.84
3	Dissolve Oxygen, mg/l	6.5	6.4	6.4	6.4	6.5	6.7	6.4	6.5	6.7	6.4	6.9	6.4	6.9	6.7	6.4	6.6	6.7
4	Total Dissolved Solids, mg/l	24	26	26	26	24	28	30	26	30	22	28	20	28	20	24	24	20
5	Total Hardness, (as CaCO ₃), mg/l	16	20	20	16	20	20	24	16	24	16	28	12	16	12	16	16	12
6	Suspended solids mg/l	4	3.8	4	6.4	4.2	6	6.2	6	4	4	4.2	<2.5	6.2	4.2	<2.5	4	6.8
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.42	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl ⁻ , mg/l	4	6	6	6	4	8	6	6	6	4	6	4	4	4	4	6	6
10	Sulphate (as SO ₄), mg/l	<1.0	<1.0	<1.0	1.03	1.3	<1.0	<1.0	1.32	1.2	<1.0	1.32	<1.0	<1.0	1.32	1.24	3.2	<1.0
11	Calcium (as Ca), mg/l	3.2	4.8	3.2	3.2	4.8	4.8	6.4	3.2	6.4	1.6	6.4	1.6	4.8	1.6	3.2	3.2	3.2
12	Magnesium (as Mg), mg/l	1.94	1.94	2.91	1.94	1.94	1.94	1.94	1.94	1.94	2.91	2.91	1.94	1.94	1.94	1.94	1.94	<1.0
13	Turbidity, (N.T.U.)	3	3	2.9	5	4	6	4	3	8	6.2	2.4	2.9	10	2	4	3.7	8.4
14	Fluoride as F ⁻ , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001
20	Chromium (as Cr ⁶⁺), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0679	<0.05
23	Iron (as Fe), mg/l	0.91	1.02	0.19	1.1	0.52	0.24	0.74	0.73	0.93	0.91	0.91	0.24	0.69	0.54	0.72	0.46	0.71
24	STREAM FLOW RATE (m ³ /sec)	2.845	1.14	0.826	0.882	1.324	0.892	0.89	1.484	1.134	1.232	1.123	0.824	0.652	0.77	0.894	0.394	0.842

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Stream water Quality Analysis December 2025

SL.	Parameters	Sampling Station Code																
NO		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejaput	Bariguda	Kapsiput	Litaputta	Mordaguda a	Gauraguda a	Tenguliguda ha	Kakirguda a	Tentulipada ar	Kaler	Kusumaguda ha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.3	24.2	24.9	25	24.3	24.2	24.9	25	24.9	24.4	25	24.9	24.4	24.2	24	24.2	24.4
2	pH Value	6.79	6.81	6.87	6.81	7.12	7.68	6.91	6.78	7.84	6.95	7.81	6.92	6.83	6.94	6.82	6.95	6.86
3	Dissolve Oxygen, mg/l	6.4	6.5	6.4	6.6	6.6	6.5	6.5	6.6	6.5	6.5	6.8	6.7	6.8	6.7	6.5	6.6	6.7
4	Total Dissolved Solids, mg/l	26	24	26	22	26	28	28	26	30	22	28	20	28	20	24	26	20
5	Total Hardness, (as CaCO ₃), mg/l	20	20	20	16	20	20	24	16	24	16	28	16	16	12	16	16	12
6	Suspended solids mg/l	4	4	4.8	6.4	4	4.8	6.4	6	4.8	4.8	4.4	<2.5	6.4	3.8	4.6	4	6
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.42	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl – mg/l	6	4	8	6	4	6	8	8	8	6	4	6	6	4	6	8	6
10	Sulphate (as SO ₄), mg/l	<1.0	<1.0	<1.0	1.3	1.5	<1.0	<1.0	1.62	1.2	<1.0	1.32	<1.0	<1.0	1.52	1.65	4.2	<1.0
11	Calcium (as Ca), mg/l	3.2	4.8	3.2	4.8	4.8	4.8	6.4	3.2	6.4	1.6	6.4	1.6	4.8	1.6	3.2	3.2	3.2
12	Magnesium (as Mg), mg/l	2.91	1.94	2.91	<1.0	1.94	1.94	1.94	1.94	1.94	2.91	2.91	2.91	1.94	1.94	1.94	1.94	<1.0
13	Turbidity,(N.T.U.)	3.3	3.5	3.6	5.2	3.6	5.8	5.6	4.8	6.2	4.1	3.8	0.86	8	3.2	4.6	3.9	8.8
14	Fluoride as F , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.26	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001
20	Chromium (as Cr ⁺⁶), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.93	1.05	0.32	1.12	0.52	0.36	0.86	0.42	1.02	0.85	0.91	0.24	0.71	0.52	0.72	0.42	0.81
24	STREAM FLOW RATE (m ³ /sec)	2.844	1.138	0.845	0.892	1.382	0.897	0.898	1.485	1.132	1.145	1.132	0.865	0.635	0.789	0.886	0.468	0.856

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Stream water Quality Analysis January 2026

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jholaguda	Bhitara Bhejaput	Barigurha	Kapsiput	Litaputta	Murdagurha	Gaurhaguda	Tenguligurha	Kakirgumra	Tentolipada	Kaler	Kusumagurha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.4	24.2	24.7	24.9	25	24.7	24.7	25.1	25	24.7	25	24.7	24.6	24.5	24.9	24	24.7
2	pH Value	6.83	6.8	6.89	6.79	7.24	7.59	6.93	6.81	7.86	7.05	7.79	6.99	6.9	6.93	6.88	7.11	6.93
3	Dissolve Oxygen, mg/l	6.5	6.5	6.6	6.4	6.6	6.5	6.6	6.8	6.7	6.8	6.4	6.6	6.7	6.7	6.6	6.5	6.7
4	Total Dissolved Solids, mg/l	28	24	24	28	20	20	24	20	24	30	28	26	20	20	24	20	20
5	Total Hardness, (as CaCO ₃), mg/l	24	20	20	24	16	16	20	16	16	28	24	20	12	12	20	16	16
6	Suspended solids mg/l	4.2	4	4.6	6	4.8	4.8	6.2	6	4.6	5	4.4	<2.5	6.4	4	4.6	3.8	6.2
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.32	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	Chloride as Cl - mg/l	8	8	6	4	6	6	4	8	4	4	6	8	6	6	8	6	4
10	Sulphate (as SO ₄), mg/l	<1.0	<1.0	<1.0	1.8	1.7	<1.0	<1.0	1.6	1.1	<1.0	1.5	<1.0	<1.0	1.6	1.6	4.3	<1.0
11	Calcium (as Ca), mg/l	3.2	3.2	4.8	6.4	4.8	3.2	4.8	3.2	4.8	8	3.2	3.2	3.2	3.2	3.2	3.2	3.2
12	Magnesium (as Mg), mg/l	3.88	2.91	1.94	1.94	<1.0	1.94	1.94	1.94	<1.0	1.94	3.88	2.91	<1.0	<1.0	2.91	1.94	1.94
13	Turbidity, (N.T.U.)	3.1	3.3	3.6	5.3	3.8	5.5	5.1	4.6	5.9	4.3	3.3	1.3	7.7	3.1	4	3.9	8.3
14	Fluoride as F ₂ , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001
20	Chromium (as Cr ⁶⁺), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.87	1.11	0.38	1.12	0.54	0.43	0.8	0.51	1.06	0.79	0.9	0.22	0.77	0.46	0.8	0.49	0.86
24	STREAM FLOW RATE (m ³ /sec)	2.839	1.141	0.849	0.887	1.374	0.899	0.901	1.482	1.133	1.147	1.137	0.861	0.639	0.799	0.879	0.472	0.839

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Stream water Quality Analysis February 2026

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Jhalaguda	Bhitara Bhejapota	Bar gucha	Kapiput	Litaputta	Mordagurha	Gauchaguda	Tenguligurha	Kakirgum	Tentulipadar	Keler	Kusomagurha	Kirajhola	Rangapani	Pansaputa	Bahipeta
1	Temp (°C)	24.5	24.4	24.3	25.1	24.9	24.7	25	24.7	24.9	25.1	24.6	24.7	24.8	25.1	24.7	24.6	25
2	pH Value	6.89	6.95	6.85	6.86	6.97	6.68	6.44	6.12	6.21	6.22	6.21	6.32	6.32	6.37	6.36	6.42	6.49
3	Dissolve Oxygen, mg/l	6.6	6.6	6.5	6.7	6.6	6.5	6.6	6.7	6.6	6.8	6.7	6.7	6.6	6.5	6.5	6.4	6.5
4	Total Dissolved Solids, mg/l	20	20	18	18	16	16	18	12	16	12	14	20	20	22	18	20	18
5	Total Hardness, (as CaCO ₃), mg/l	16	16	12	12	8	8	12	8	12	8	8	12	12	12	8	12	12
6	Suspended solids mg/l	4	6	5.2	6.4	8.4	8	10.6	6.8	8.8	8.4	8.6	12.6	14.2	14.8	14	14	14.8
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.26	<0.05	0.06	<0.05	<0.05	0.09	0.15	0.19	0.14	0.08	0.11
9	Chloride as Cl ⁻ , mg/l	6	6	8	8	4	6	6	4	8	4	8	6	6	8	6	4	6
10	Sulphate (as SO ₄), mg/l	<1.0	<1.0	<1.0	1.3	1.8	<1.0	2.2	<1.0	1.4	1.3	1.2	1.8	2.2	2.4	2	1.9	2.2
11	Calcium (as Ca), mg/l	3.2	3.2	1.6	1.6	<1.0	1.6	1.6	<1.0	3.2	1.6	<1.0	1.6	1.6	3.2	<1.0	1.6	3.2
12	Magnesium (as Mg), mg/l	1.94	1.94	1.94	1.94	1.94	<1.0	1.94	1.94	<1.0	<1.0	1.94	1.94	1.94	<1.0	1.94	1.94	<1.0
13	Turbidity (N.T.U.)	2.8	3	0.9	2.3	3.2	3.6	2.8	3.2	4.2	2.8	3.8	3.2	2.9	3.3	3.5	3.8	2.8
14	Fluoride as F ⁻ , mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	0.1	<0.1	0.12	<0.1	0.15	0.16	0.2	0.17	0.16	0.17
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001
20	Chromium (as Cr ⁶⁺), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.81	0.83	0.26	0.91	0.36	0.32	0.39	0.65	0.91	0.81	0.36	0.58	0.36	0.85	0.36	0.68	0.66
24	STREAM FLOW RATE (m ³ /sec)	2.742	1.039	1.033	0.902	0.998	1.011	0.923	1.532	1.122	1.139	0.907	0.937	0.789	0.728	0.891	0.488	0.863

Sd/-
Semir Ranjan Pattnaik
 Sr. Manager (Geology)-Environment
 Panchpatmali Bauxite Mine
 NALCO, Damanjodi-763008

Sd/-
Dr ASHUTOSH ROUL
 General Manager (SH&E)
 Panchpatmali Bauxite Mines
 NALCO, Damanjodi-763008

Stream water Quality Analysis March 2026

SL. NO	Parameters	Sampling Station Code																
		G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10	G-11	G-12	G-13	G-14	G-15	G-16	G-17
		Litiguda	Inolaguda	Bhitara Bhejaput	Bariguda	Kapaput	Litapotta	Murdagurha	Gaurahad	Tenguligurha	Kakirgum	Tentulipad	Kaler	Kuomagurha	Kirajhola	Rangapani	Pansaputa	Balipeta
1	Temp (°C)	24.5	24.4	24.3	25.1	24.9	24.7	25	24.7	24.9	25.1	24.6	24.7	24.8	25.1	24.7	24.6	25
2	pH Value	6.72	6.96	6.85	6.86	6.97	6.68	6.44	6.12	7.2	6.22	6.21	6.32	6.32	6.37	6.36	6.42	6.49
3	Dissolve Oxygen, mg/l	6.7	6.6	6.6	6.7	6.7	6.6	6.5	6.7	6.6	6.8	6.6	6.7	6.7	6.6	6.5	6.7	6.5
4	Total Dissolved Solids, mg/l	24	20	22	18	16	16	20	16	16	12	14	20	20	22	18	20	18
5	Total Hardness, (as CaCO ₃), mg/l	16	16	12	12	8	8	12	8	12	12	8	12	12	12	8	12	12
6	Suspended solids mg/l	4	4.8	5.2	6.4	8.4	8	10.6	6.8	8.8	8	8.6	12	14	16	14	14	16
7	B.O.D mg/l 3 days at 27°C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
8	Nitrate (as NO ₃), mg/l	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.26	<0.05	<0.05	<0.05	<0.05	0.09	0.09	0.11	0.13	0.08	0.09
9	Chloride as Cl - mg/l	10	6	8	10	6	8	10	6	8	4	8	6	6	8	6	4	6
10	Sulphate (as SO ₄), mg/l	<1.0	<1.0	<1.0	1.3	1.8	<1.0	2.2	<1.0	1.4	1.3	1.2	1.8	2.2	2.4	2	1.9	2.2
11	Calcium (as Ca), mg/l	3.2	4.8	1.6	1.6	<1.0	1.6	1.6	<1.0	3.2	1.6	<1.0	1.6	1.6	3.2	<1.0	1.6	3.2
12	Magnesium (as Mg), mg/l	1.94	<1.0	1.94	1.94	1.94	<1.0	1.94	1.94	<1.0	1.94	1.94	1.94	1.94	<1.0	1.94	1.94	<1.0
13	Turbidity (N.T.U.)	2.5	2.88	1	2.3	3.2	3.4	3	3.4	4	3	3.8	3.6	3	3.4	3.6	3.8	3
14	Fluoride as F, mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	0.1	<0.1	0.12	<0.1	0.15	0.16	0.2	0.17	0.16	0.17
15	Phenolic Compounds, (as C ₆ H ₅ OH), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Arsenic (as As), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Mercury (as Hg), mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
18	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
19	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001
20	Chromium (as Cr ⁺⁺), mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Copper (as Cu), mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Zinc (as Zn) mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Iron (as Fe), mg/l	0.79	0.81	0.28	0.91	0.41	0.36	0.41	0.72	1	0.92	0.38	0.61	0.38	0.91	0.45	0.71	0.69
24	STREAM FLOW RATE (m ³ /sec)	2.651	1.041	1.036	0.912	1.011	1.02	1.021	1.623	1.232	1.235	1.015	0.98	0.98	0.887	1.022	0.658	0.986


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ANNEXURE-III

GROUND WATER QUALITY ANALYSIS AROUND PANCHPATMALI CENTRAL & NORTH BLOCK BAUXITE MINE (2025-26)

For April 2025

Sl. No	Name of Tests	Permissible Limits	GW-1 Metingi Village	GW-2 Chhatamba Village	GW-3 Panasapur	GW-4 Jhariapadar	GW-5 Tentulipadar	GW-6 Ichhapur	GW-7 Mundagadati	GW-8 Bijaghati Village	GW-9 Putraghati Village	GW-10 Chararha Village	GW-11 Kapsiput Village	GW-12 Jambagurha Village	GW-13 Shriguda Village	GW-14 Kakiriguma Village	GW-15 Sorishapadar Village
1	pH at 30°C	6.5-8.5	6.9	6.9	6.8	6.8	6.8	6.8	6.9	6.8	6.8	6.8	6.9	6.9	6.9	6.8	6.8
2	D.O. (mg/l)	-	3.5	3.6	3.7	3.8	3.7	3.8	3.5	3.6	3.8	3.8	3.9	3.9	3.5	3.6	3.5
3	T.D.S (mg/l)	2000	2.98	6.9	9.4	6.55	8.2	9.12	3.73	7.93	9.14	7.45	8.22	7.7	1.89	6	1.85
4	Total Hardness, as CaCO ₃	600	84	38	48	11	48	44	120	128	40	40	48	36	88	60	88
5	Total Alkalinity (as CaCO ₃) (mg/l)	600	40	52	44	44	64	60	84	32	56	56	56	36	68	56	20
6	B.O.D.	30	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
7	Nitrate as NO ₃ (mg/l)	45	3.2	2.6	2.5	53.9	4.8	4.2	2.5	2.8	0.96	0.54	9.6	16.8	2.5	2.8	4.6
8	Chlorides as Cl (mg/l)	1000	44	12	16	84	12	4	92	108	4	4	4	4	56	4	60
9	Sulphate as SO ₄ (mg/l)	400	15	3	2	40	<1.0	3	27	30	<1.0	<1.0	<1.0	<1.0	2	1	2
10	Calcium as Ca (mg/l)	200	22	14	1	32	18	14	30	40	14	14	14	11	29	11	27
11	Magnesium as Mg (mg/l)	100	7	6	9	8	7	2	17	7	6	1	8	2	14	8	5
12	Turbidity (NTU)	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.2	15	<1.0	<1.0	<0.1	<0.1	<0.1
13	Fluoride as F (mg/l)	1.5	0.132	0.08	0.144	0.116	0.106	0.06	0.09	0.08	0.157	0.116	0.184	0.172	0.09	0.105	0.113
14	Phenolic compounds as C ₆ H ₅ OH (mg/l)	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
15	Arsenic as As (mg/l)	0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
16	Mercury as Hg (mg/l)	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
17	Lead as Pb (mg/l)	0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18	Cadmium as Cd (mg/l)	0.01	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
19	Chromium Cr ⁺⁶ (mg/l)	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
20	Copper as Cu (mg/l)	1.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
21	Zinc as Zn (mg/l)	15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
22	Iron as Fe (mg/l)	1	0.243	0.226	0.293	0.302	0.358	0.367	0.552	0.326	0.262	0.842	0.282	0.386	0.422	0.23	0.305
23	Temperature in °C	-	33°C	33°C	34°C	34°C	32°C	32°C	34°C	34°C	34°C	33°C	30°C	30°C	32°C	32°C	32°C
24	Coliform (MPN)	ND in 100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Norm as per IS 10500:2012

[Signature]
 Sr. Manager (Geology)-Environment
 Panchpatmali Bauxite Mine
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 Dr. ASHUTOSH ROUL
 General Manager (SH&E)
 Panchpatmali Bauxite Mine
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For August 2025

Sl. No	Name of Tests	Permissible Limits	GW-1 Metingi Village	GW-2 Chhatamb a Village	GW-3 Panasaput	GW-4 Jhariapad ar	GW-5 Tentulipad ar	GW-6 Ichhapur	GW-7 Mundagad ati	GW-8 Bijaghathi Village	GW-9 Putraghati Village	GW-10 Chararha Village	GW-11 Kapsiput Village	GW-12 Jambagur ha Village	GW-13 Shriguda Village	GW-14 Kakirigum a Village	GW-15 Sorisha padar Village
1	pH at 30°C	6.5-8.5	7.25	6.83	6.75	6.74	8.23	7.13	6.99	7.01	6.95	5.96	6.96	6.74	7.04	6.9	6.91
2	D.O. (mg/l)	-	4	4.2	4.3	4.2	4.3	4.4	4	4.2	3.6	4.4	4.6	4.1	4.3	4.2	4.6
3	T.D.S (mg/l)	2000	60	172	162	166	20	154	166	156	204	216	120	140	98	140	280
4	Total Hardness. as CaCO ₃	600	52	124	128	120	16	92	104	104	104	108	48	44	28	112	128
5	Total Alkalinity (as CaCO ₃) (mg/l)	600	33	110	103.4	107.8	11	94.6	94.6	103.4	24.2	35.2	52	26.4	48	84	81
6	B.O.D.	30	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	Nitrate as NO ₃ (mg/l)	45	0.34	0.09	0.2	<0.05	<0.05	0.27	0.39	0.09	44.5	43.8	0.21	0.7	0.9	0.41	0.42
8	Chlorides as Cl (mg/l)	1000	4	6	8	4	4	10.01	12.01	8	54.05	54.05	16.01	24.02	32.03	8	10.01
9	Sulphate as SO ₄ (mg/l)	400	19.4	4.2	2.4	4.4	<1.0	12.4	10.9	12.4	18.4	8.1	10.9	2.4	4.4	2.4	2.8
10	Calcium as Ca (mg/l)	200	9.6	27.2	20.8	22.4	3.2	20.8	17.6	16	17.6	19.2	12.8	9.6	8	17.6	20.8
11	Magnesium as Mg (mg/l)	100	6.8	13.6	18.4	15.5	1.9	0.8	14.5	15.5	14.5	14.5	3.88	4.86	1.94	16.52	18.46
12	Turbidity (NTU)	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	<0.1	0.4	0.9	5	<0.1	1.8	<0.1	3	3
13	Fluoride as F (mg/l)	1.5	0.1	0.14	0.12	0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
14	Phenolic compounds as C ₆ H ₅ OH (mg/l)	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
15	Arsenic as As (mg/l)	0.01	0.001	0.002	0.004	0.001	0.003	0.006	0.002	0.005	0.005	0.006	<0.001	<0.001	<0.001	<0.001	<0.001
16	Mercury as Hg (mg/l)	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
17	Lead as Pb (mg/l)	0.05	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005
18	Cadmium as Cd (mg/l)	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Chromium Cr ⁶⁺ (mg/l)	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper as Cu (mg/l)	1.5	<0.02	0.048	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Zinc as Zn (mg/l)	15	0.377	0.24	<0.05	0.38	<0.05	0.18	0.21	0.34	1.06	1.03	<0.05	<0.05	<0.05	<0.05	<0.05
22	Iron as Fe (mg/l)	1	0.07	0.12	0.24	<0.05	<0.05	0.17	0.98	0.9	0.3	0.17	0.24	<0.05	0.9	0.6	0.58
23	Temperature in 0°	-	24.8	24.8	24.2	24.2	24.2	24.8	24.8	24.6	24.2	24.8	24.8	24.8	24.8	24.8	23.8
24	Coliform (MPN)	ND in 100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Norm as per IS 10500:2012

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 NALCO, Damanjodi-763008

For November 2025

Sl. No	Name of Tests	Permissible Limits	GW-1 Metingi Village	GW-2 Chhatamba Village	GW-3 Panasaput	GW-4 Jhariapadar	GW-5 Tentulipadar	GW-6 Ichhapur	GW-7 Mundagadati	GW-8 Bijaghati Village	GW-9 Putraghati Village	GW-10 Chararha Village	GW-11 Kapsiput Village	GW-12 Jambagurha Village	GW-13 Shriguda Village	GW-14 Kakiriguma Village	GW-15 Sorishapadar Village
1	pH at 30°C	6.5-8.5	7.37	6.57	6.59	7.1	7.21	7.01	7.36	7.21	7.17	7.27	5.77	5.75	5.93	6.05	6.09
2	D.O. (mg/l)	-	4.1	4	4.2	4.2	4.2	4.1	4.1	4.2	3.8	4.1	4.1	4	4.3	4.3	4.4
3	T.D.S (mg/l)	2000	16	130	126	54	20	154	166	156	204	216	120	140	98	140	280
4	Total Hardness as CaCO ₃	600	8	68	68	20	8	20	12	4	8	8	36	32	24	28	28
5	Total Alkalinity as CaCO ₃ (mg/l)	600	9	101	94.6	24	11	31	9	9	9	4	17	22	24	29	33
6	B.O.D.	30	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	Nitrate as NO ₃ (mg/l)	45	0.2	0.12	0.06	<0.05	<0.05	0.2	4.7	1.26	1.36	7.7	5.44	0.4	0.6	0.2	0.28
8	Chlorides as Cl (mg/l)	1000	6	6	6	12.01	4	10.01	4	<1.0	1	4	12.01	12.01	12.01	14.01	10.01
9	Sulphate as SO ₄ (mg/l)	400	12	3.9	<1.0	3.9	<1.0	10.01	1.37	1.5	2.04	6.3	1.91	1.8	2.2	1.8	1.3
10	Calcium as Ca (mg/l)	200	<1.0	16	16	3.2	<1.0	4.8	1.6	<1.0	1.6	<1.0	17	6.4	4.8	6.4	8
11	Magnesium as Mg (mg/l)	100	1.94	6.8	6.8	2.91	1.94	1.94	1.94	<1.0	<1.0	1.94	3.88	3.88	2.91	2.91	1.94
12	Turbidity (NTU)	10	3.4	<0.1	1.5	3.9	2.2	3.3	2.1	0.7	0.9	0.8	18	4.2	15.1	6.1	6.7
13	Fluoride as F (mg/l)	1.5	<0.1	0.12	1.01	<0.1	<0.1	0.15	0.23	0.2	<0.1	<0.1	1.09	<0.1	<0.1	<0.1	<0.1
14	Phenolic compounds as C ₆ H ₅ OH (mg/l)	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
15	Arsenic as As (mg/l)	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Mercury as Hg (mg/l)	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
17	Lead as Pb (mg/l)	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
18	Cadmium as Cd (mg/l)	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Chromium Cr ⁺⁶ (mg/l)	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper as Cu (mg/l)	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Zinc as Zn (mg/l)	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Iron as Fe (mg/l)	1	0.12	0.06	0.19	<0.05	0.1	0.2	0.08	0.06	0.19	<0.05	0.4	1.2	1.8	1.5	1
23	Temperature in °C	-	24.7	24.6	24.8	24.4	24.3	24.8	24.2	25	24.3	24.2	24.9	24.6	24.7	24.9	24.8
24	Coliform (MPN)	ND in 100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Norm as per IS 10500:2012

S. D. Pattnaik
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Dr. Ashutosh
Dr. ASHUTOSH ROY
 General Manager (S.)
 Panchpatmali Bauxite
 NALCO, Damanjodi

For January 2026

Sl. No	Name of Tests	Permissible Limits	GW-1 Metingi Village	GW-2 Chhatamb a Village	GW-3 Panasaput	GW-4 Jhariapad ar	GW-5 Tentulipad ar	GW-6 Ichhapur	GW-7 Mundagad ati	GW-8 Bijaghathi Village	GW-9 Putraghati Village	GW-10 Chararha Village	GW-11 Kapsiput Village	GW-12 Jambagur ha Village	GW-13 Shriguda Village	GW-14 Kakirigum a Village	GW-15 Sorisha padar Village
1	pH at 30°C	6.5-8.5	6.6	6.62	6.65	6.62	6.62	6.68	6.74	7.4	7.7	6.72	6.77	7.4	7.33	6.9	6.65
2	D.O. (mg/l)	-	4.3	4.1	4.2	4.2	4.3	4.1	4	4.1	4.2	4.1	4.1	4	4.3	4.2	4.4
3	T.D.S (mg/l)	2000	140	210	204	208	134	140	280	10	282	288	290	10	12	10	40
4	Total Hardness, as CaCO ₃	600	104	164	144	148	116	104	196	8	192	196	196	8	8	8	20
5	Total Alkalinity (as CaCO ₃) (mg/l)	600	90	161	161	163	92	90	198	4	187	161	169	7	7	7	20
6	B.O.D.	30	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	Nitrate as NO ₃ (mg/l)	45	8.5	8.1	9.4	8.2	18.83	9.6	25.8	2	21.2	28.2	27.3	0.7	0.7	0.4	0.5
8	Chlorides as Cl (mg/l)	1000	20	66	4	12.01	14	14	24	6	20	18	22	6	8	4	18
9	Sulphate as SO ₄ (mg/l)	400	16.7	9.5	4.8	6.2	6.8	12.4	9.6	1.6	16.2	13.3	9.6	2.1	2.8	2	1.4
10	Calcium as Ca (mg/l)	200	27.2	51.2	46.4	41.6	40	33.6	65.6	3.2	62.4	64	64	1.6	3.2	1.6	6.4
11	Magnesium as Mg (mg/l)	100	8.74	8.74	6.8	10.69	3.88	4.86	7.77	<1.0	8.74	8.74	8.74	<1.00	<1.0	<1.0	<1.0
12	Turbidity (NTU)	10	0.6	0.9	0.8	0.7	0.8	0.2	2.2	0.4	4	4.2	4.1	0.4	0.5	<0.1	0.5
13	Fluoride as F (mg/l)	1.5	0.16	0.22	1.06	0.2	0.25	0.21	0.36	0.11	0.68	0.38	0.3	<0.1	<0.1	<0.1	<0.1
14	Phenolic compounds as C ₆ H ₅ OH (mg/l)	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
15	Arsenic as As (mg/l)	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
16	Mercury as Hg (mg/l)	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
17	Lead as Pb (mg/l)	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
18	Cadmium as Cd (mg/l)	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Chromium Cr ⁶⁺ (mg/l)	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper as Cu (mg/l)	1.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
21	Zinc as Zn (mg/l)	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	Iron as Fe (mg/l)	1	0.13	0.23	0.27	0.2	0.1	0.07	0.29	0.08	0.29	0.26	0.27	<0.05	0.06	<0.05	0.08
23	Temperature in 0°	-	24.9	24.7	24.8	24.6	24.7	24.6	24.7	25	24.9	24.3	24.5	25	24.4	24.3	24.5
24	Coliform (MPN)	ND in 100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Norm as per IS 10500:2012

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ANNEXURE-IV**STATUS OF COMPLIANCE OF MEASURES TO BE TAKEN UP BY NALCO WITHIN THE PROJECT AREA OF PANCHPATMALI BAUXITE MINE (CENTRAL & NORTH BLOCK ML) AS PER APPROVED WILD LIFE MANAGEMENT PLAN**

Sl.No.	Para ref.	Item of Work	Status as on 31.03.2026
1	3. b) i) 1.	Soil and moisture conservation in the ML area	Top soil excavated is used in concurrent reclamation of mined out area and is 100% utilised. All the rainfall in mined out area percolates into the ground without being discharged outside due to presence of in-situ barrier all around the mine. Besides rich growth of plantation and grass in the mined out area helps the soil to retain optimum moisture.
2	3. b) i) 2.	Grass seeding in hill slopes one year prior to plantation	Every year grass turfing with local grass is done in slopes in ML area. Grass turfing carried out during 2025-26 is 4000 sq.mtr.
3	3. b) i) 3.	Water harvesting structure in the Central Location of the lease where normally stray cattle congregate 40 m length x 30 m width x 3 m depth at the central point.	Three Nos of water harvesting structures do exist over Panchpatmali Bauxite Mine to take care of the need of stray cattle and other wildlife.
4	3. b) i) 4.	Fire line inside already reclaimed areas prior to commencement of the season (January to June) 20 km	Every year around 1,45,000 sq.mtr area of fire line inside the reclaimed area as total area clearance to prevent spread of fire
5	3. b) i) 5.	Watch and ward (10 nos) to prevent spread of fire will be looked after by NALCO	Watch and ward @12 nos per day are being deployed to prevent spread of fire.
6	3. b) i) 6.	Signage depicting messages to workers to protect the planted species / their vernacular name and usages and their medicinal value.	Signage board on plantation & Environmental issues have been provided.
7	3 b) i) 7	Awareness campaign amongst the workers regarding the ecological / ethnic values of forest	Every year awareness campaign is being organized to spread awareness among Employees/Workers regarding the ecological / ethnic values of forest through World Environment Day, Vana Mahotsav Week, EMAP program, MEMC Week, etc. Besides villagers in the surrounding area are being distributed fruit bearing trees every year to create awareness about importance of tree plantation and they are also explained about having compassion towards wildlife for maintaining a healthy ecosystem in the region.
8	3. b)i) 8.	Solar Fencing around Red Mud Pond over 3.0 Kms.	The red mud pond is located beyond the buffer zone of Panchpatmali Bauxite Mine. Further no elephant habitat exists in the core or buffer zone of Panchpatmali Bauxite Mine.

(P Mohanta)

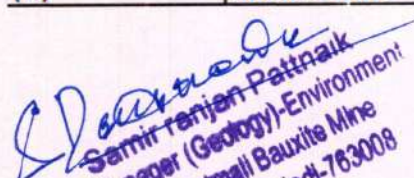
Chief General Manager(Mines)

PURUSOTTAM MOHANTA
Chief General Manager (Mines)
Panchpatmali Bauxite Mines
NALCO, Damanjodi-763008

ANNEXURE-V
AMBIENT NOISE LEVEL MEASUREMENT IN AND AROUND
PANCHPATMALI CENTRAL & NORTH BLOCK BAUXITE MINE FOR 2025-26

Sl.	Monitoring station code & its direction	Category of area/Zone	Date	Noise level dB(A)		Date	Noise level dB(A)		Date	Noise level dB(A)		Date	Noise level dB(A)	
				Day	Night		Day	Night		Day	Night		Day	Night
1	N1 Baiguda Village- SW	C	21.04.25	40.2	49.2	06.08.25	49.8	41.3	12.11.25	38.7	25.8	10.01.2026	38.7	25.85
2	N2 Bitarguda Village- W	C	21.04.25	45.2	35.2	06.08.25	42.48	36.5	13.11.25	38.4	25.63	11.01.2026	38.7	28.85
3	N3 Goudguda Village- NW	C	21.04.25	45.1	41.8	06.08.25	45.1	41.8	14.11.25	37.6	26.08	11.01.2026	37.6	26.08
4	N4 Kakinguma Village- N	C	21.04.25	42.6	46.6	06.08.25	48	44.21	15.11.25	43.5	28	12.01.2026	43.5	28.08
5	N5 Upper Meeting Village- NE	C	21.04.25	51.8	52.2	06.08.25	52.4	43.1	08.11.25	35.2	26.42	12.01.2026	35.2	26.42
6	N6 Near Main Haul Road- E	A	21.04.25	40	51.8	06.08.25	51.4	45.48	07.11.25	60.9	58.33	13.01.2026	59	57.03
7	N7 Near Crusher House- SE	A	21.04.25	52.6	38.1	06.08.25	71.3	67.5	08.11.25	62.1	59.16	13.01.2026	63.8	60.34
8	N8 Near HEMM Main Building- SW	A	21.04.25	56.8	41.6	06.08.25	59	51.51	09.11.25	62.7	54.31	14.01.2026	64.3	55.37
9	N9 Roof Of Panchpatmali Bhawan- S	A	21.04.25	53.1	43.1	06.08.25	52.9	43.2	10.11.25	65.3	55.33	14.01.2026	66.1	55.92
10	N10 Near SMCP North Block-NE	A	21.04.25	55.3	45.1	06.08.25	55.6	45.8	11.11.25	64.4	55.49	15.01.2026	64.3	56.43

Norm			
Category of area/zone		Limits in dB(A) Leq	
		Day time	Night time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence zone	50	40


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ANNEXURE-VI
WASTE WATER ANALYSIS AT PANCHPATMALI CENTRAL & NORTH BLOCK BAUXITE MINE
(2025-26)

Sl. No.	Parameter	NORM	WW1												WW2												Average	
			Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	WW1	WW2
1	Temperature (°C)	-	32	24.2	24.2	24.3	24.9	24.8	24.8	24.2	24.6	24.5	24.7	25.2	32	24.2	24.1	24.2	24.9	24.9	24.9	24.2	24.6	24.6	24.2	24.9	25.200	25.142
2	pH Value	5.5-9.0	7	5.02	5.6	5.62	5.62	5.7	5.7	6.47	6.96	5.72	5.16	5.8	7	6.26	6.3	6.7	7	7	7	6.23	6.64	6.69	6.73	6.42	5.864	6.664
3	Dissolve Oxygen, mg/l	-	4	6.6	5.8	6.6	6.6	6.6	6.6	6.5	6.3	6.5	6.5	6.2	3.8	6.6	6.6	6.7	6.4	6.4	6.4	6.4	6.6	6.6	6.6	6.7	6.233	6.317
4	Total Dissolved Solids, mg/l	-	143	68	80	68	90	110	150	88	106	50	62	64	114	90	94	90	84	68	62	74	118	124	138	100	89.917	96.333
5	Total Hardness (as CaCO ₃), mg/l	-	64	25	52	25	34	16	16	36	48	20	24	24	56	43	44	45	28	28	28	24	72	52	64	68	32.000	46.000
6	Suspended Solids mg/l	100	<1.0	8	<2.5	8	10	12	36	62	60	<2.5	12	10	<1.0	8	6.2	6.5	8.4	10	30	24	20	10	32	20	24.222	16.100
7	B.O.D mg/l 3 days at 27°C	30	28	15	12	15	12	18	34	18	26	16	23	28	<3.0	<1.0	<1.0	<1.0	4	5	14	25	18	12	18	16	20.417	14
8	C.O.D mg/l	250	154	61	52	61	72	57.6	101	60	96	55	77	90	13	<5.0	<5.0	<5.0	9.6	14.6	43.2	80	58	41.5	64	47	78.033	41.211
9	Nitrate (as NO ₃), mg/l	-	2.13	4.27	5.2	4.27	2.2	2.4	2.4	3.8	4.21	3.7	4.2	4.1	0.96	5.85	6.2	5.6	0.8	0.21	0.21	0.59	0.89	6.89	6.14	7.2	3.573	3.462
10	Chloride as Cl ⁻ mg/l	-	40	18.01	18	18	1.1	22	22	18.01	32	10	16	16.01	36	14.01	14	14	<1.0	8	8	20.02	20	34	14	16.01	19.263	18.008
11	Sulphate (as SO ₄), mg/l	-	4	8	8.2	8.8	3.2	1.8	1.8	<1.0	<1.0	<1.0	<1.0	1.24	1	19	18	19	4.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.630	12.360
12	Calcium (as Ca), mg/l	-	18	4.3	12.8	4.5	1.94	3.2	3.2	8	9.6	4.8	6.4	6.4	16	14.4	12.8	14.4	2.91	4.8	4.8	6.4	16	14.4	17.6	19.2	6.928	11.976
13	Magnesium (as Mg), mg/l	-	5	3.45	4.86	3.55	0.21	1.94	1.94	3.88	5.83	1.94	1.94	1.94	4	1.7	2.91	1.7	<0.1	3.88	3.88	1.94	7.77	3.88	4.86	4.8	3.040	3.756
14	Fluoride as F ⁻ , mg/l	2	0.37	<0.1	<0.1	<0.1	<0.5	0.22	0.22	<0.1	<0.1	<0.1	<0.1	<0.1	0.244	0.140	0.2	0.14	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.271	0.181
15	Phenolic Compounds,	1	<0.01	<0.5	<0.5	<0.5	0.004	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.5	<0.5	<0.5	0.01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.004	0.007
16	Arsenic (as As), mg/l	0.2	<0.05	<0.00	<0.00	<0.0	<0.000	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.05	<0.00	<0.00	<0.0	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	0.009	0.009
17	Mercury (as Hg), mg/l	0.01	<0.01	<0.00	<0.00	<0.0	<0.005	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.01	<0.00	<0.00	<0.0	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	0.003	0.003
18	Lead (as Pb), mg/l	0.1	<0.01	<0.00	<0.00	<0.0	<0.001	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.01	<0.00	<0.00	<0.0	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	0.005	0.005
19	Cadmium (as Cd), mg/l	2	<0.01	<0.00	<0.00	<0.0	<0.01	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.01	<0.00	<0.00	<0.0	<0.01	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	0.004	0.004
20	Chromium (as Cr ⁶⁺), mg/l	0.1	<0.05	<0.01	<0.01	<0.0	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.0	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	0.018
21	Copper (as Cu), mg/l	3	<0.05	<0.02	<0.02	<0.0	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.0	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03
22	Zinc (as Zn), mg/l	5	<0.05	<0.05	<0.05	<0.0	0.71	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0	5.71	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.98
23	Iron (as Fe), mg/l	3	0.46	0.9	0.9	0.9	<1.0	0.8	0.8	1.3	1.9	0.46	0.91	1.11	0.385	0.6	0.6	0.6	<1.0	2.8	2.67	0.32	0.42	2.67	2.21	1.3	0.9358	1.325
24	Oil and grease	10	0.9	<1.0	<1.0	<1.0	5.62	<1.0	<1.0	3.8	4	1.8	2.6	2.8	1.000	<1.0	<1.0	<1.0	7	<1.0	<1.0	<1.0	3.8	1.1	2	2.6	1.75	2.000
WW1-treated water from Canteen																												
WW2-treated water from HEMM area																												
* Parameters are within permissible norms																												
NT- Not traceable																												

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