

Ref No: NALCO/Coal Mines Division/895/2024

Date: 16.11.2024

To
The Deputy Director General of Forest
Integrated Regional Office
Ministry of Environment, Forest & Climate Change
Regional Office (EZ), A/3,
Chandrashekharapur, Bhubaneswar – 751023
Email: roez.bsr-mef@nic.in

Sub: Submission of Half Yearly Compliance Report of Environment Clearance issued to Utkal-D Coal Mines of NALCO for the period of Apr'24 to Sep'24.

Ref:

1. Environment Clearance of Utkal-D Coal Mines issued by MOEFCC vide letter no. J-11015/203/2006-IA.II(M) dated 29.01.2007.
2. Environment Clearance of Utkal-D Coal Mines transferred by MOEFCC vide letter no. J-11015/203/2006-IA.II(M) dated 11.08.2020.

Sir,

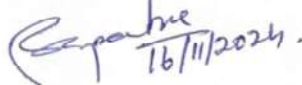
Inviting reference to the subject cited above, we are enclosing the Half Yearly Compliance Report for the period of Apr'24 to Sep'24 for the conditions stipulated in Environment Clearance of Utkal-D Coal Mines of NALCO issued vide MOEFCC's letter no. J-11015/203/2006-IA.II(M) dated 29.01.2007 and letter no. J-11015/203/2006-IA.II(M) dated 11.08.2020 for your kind consideration. The copy of the compliance report is also being sent in the soft copy through email for your kind perusal.

We wish to inform that all the necessary actions are being taken in compliance to the specific and general condition of Environment Clearance granted to Utkal-D Coal Mines of NALCO.

We trust that the information furnished is in line with your requirement.

Thanking You,

Yours Faithfully,
For and on behalf of NALCO


S S Patra
GGM (Coal Mines)

Copy to:

1. AIG of Forest, Ministry of Environment Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi – 110003 (email: monitoring-ec@nic.in)
2. Member Secretary, Central Pollution Control Board, Parivesh Bhawan', East Arjun Nagar, Shahdara, New Delhi – 110032 (email: mscb.cpcb@nic.in)
3. Zonal Office, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floor, 1582 Rajdanga Main Road, Kolkata, WB – 700107 (email: rdkolkata.cpcb@gov.in)
4. Member Secretary, State Pollution Control Board, Parivesh Bhawan, A/118, Unit 8, Nilkantha Nagar, Nayapalli, Bhubaneswar, Odisha – 751012 (email: paribesh1@ospcbboard.org)
5. Regional Officer, State Pollution Control Board, S-3/3, Industrial Estate, Hakimpada, Angul, Odisha (email: rospcb.angul@ospcbboard.org)



HALF YEARLY COMPLIANCE REPORT
(APRIL 2024 TO SEPTEMBER 2024)

For

Utkal D Coal Mines
At. Tehsil Chhendipada,
District Angul, Odisha

of

National Aluminium Company Limited
(NALCO)

Half Yearly EC Compliances Report of Utkal-D Coal Mines

MOEFCC File No. J-11015/203/2006-IA.II(M) dated: 29.01.2007

MOEFCC File No. J-11015/203/2006-IA.II(M) dated 11.08.2020

A. Specific Conditions

S. No	Conditions	Compliance Status / Remark
(i)	The Orissa Mining Company Ltd (OMCL) shall ensure strict compliance of all the environmental conditions imposed in this environmental for Utkal –D coal mining project.	Environment Clearance issue to M/s Orissa Mining Company Ltd (OMCL) has been transferred to National Aluminium Company Limited (NALCO) vide MOEFCC letter J-11015/203/2006-IA.II(M), dated 11.08.2020. Presently NALCO is ensuring strict compliance of all the environmental conditions imposed in this environmental clearance of Utkal D coal mining project.
(ii)	The OMCL shall be responsible for this project under the varies Acts, namely the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act.1981, the Environment (Protection) Act, 1986 and Public Liability Insurance Act, 1991 along with their amendments and Rules framed thereunder.	Environment Clearance issue to M/s Orissa Mining Company Ltd (OMCL) has been transferred to National Aluminium Company Limited (NALCO) vide MOEFCC letter J-11015/203/2006-IA.II(M), dated 11.08.2020. Presently NALCO will be responsible for this project under the varies Acts, namely the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act.1981, the Environment (Protection) Act, 1986 and Public Liability Insurance Act, 1991 along with their amendments and Rules framed thereunder.
(iii)	In case of change of technology from opencast to underground, a fresh clearance shall be obtained. The present clearance is only for opencast mining.	Point noted. There is no proposal of changing the technology from opencast to underground as of now. Fresh prior clearance will be obtained from Ministry in case of change in technology from opencast to underground.
(iv)	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	All the conditions stipulated by SPCB in their NOC is being complied.
(v)	Mining operations in forest area shall be restricted only to that area for which forestry clearance for diversion of forestland has been obtained.	The mining operation is being strictly carried out only after obtaining clearance for diversion of forestland.
(vi)	Mining shall be carried out as per statuette at a safe distance from the Singhada Jhor and the nallah flowing within the lease boundary. An embankment of 3m height shall be constructed within 2 years of start of mining operations along the southern bank of the Jhor and also by the side of the diverted nallahs.	Mining activities is being carried out as per statuette at a safe distance from the Singhada Jhor and the nallah flowing within the lease boundary by maintaining a distance of 15m as specified in amended Consent to Operate (CTO) issued by SPCB vide Letter No.- 14903/IND-I-CON-6762 dated 19.08.2022. Embankment of 3m height along the southern bank of the Jhor and also by the side of the diverted nallahs is under progress.
(vii)	Top soil shall be stacked properly with proper slope at earmarked site(s) and should not be	The excavated top soil has been stacked with terracing method and proper slope and height is being maintained at earmarked site as per approved

S. No	Conditions	Compliance Status / Remark
	kept active and shall be used for reclamation and development of greenbelt.	Mining Plan. Garland drainage also been constructed around the top soil storage area for rain water drainage and for top soil protection. In future top soil will be used for reclamation and development of greenbelt. Location of the top soil is enclosed as Annexure 1 .
(viii)	OB should be stacked at earmarked external OB dump site within mining lease area and shall be a maximum height of 90m only and cons it of benches of 30m each. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of reclaimed dump site should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	OB is being removed and stacked at earmarked site as per approved mining plan in terracing method up to maximum 60m height and slope angle is being maintained as per guide line of MoEFCC. Final terraces will be used for plantation work. The compliance status of dump is being submitted to MoEF&CC and SPCB, Bhubaneswar. 
(ix)	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediments flow from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area roads, green belt development etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide for adequate retention period to allow proper settling of silt material.	The appropriate size of catch drain around the OB dumps has been constructed to arrest silt and sediments flow from soil, OB and mineral dumps. The collected water is being utilized for sprinkling on haul roads and green belt development. The drain is being regularly desilted and maintained properly. The garland drains of width 2.5m with 60:1 gradient and 2.3 km length has been constructed till date. Capacity of sump is designed for 24,500 KL by keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Retention period of two days is provided to allow proper settling of silt material. 
(x)	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.	Dimension of the retaining wall and toe of the dumps is being designed as per guidelines. OB benches are maintained with the maximum height 6-7 m and width 10m to check run-off and siltation. This is based on the rainfall data.

S. No	Conditions	Compliance Status / Remark
		
(xi)	Crushers at the CHP should be operated with high efficiency bag filters and water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points etc.	No CHP installed in mines as of now.
(xii)	Drills should be wet operated only.	At present two nos of wet operated drills are used for drilling work.
(xiii)	Controlled blasting should be practiced with use of delay detonators and only during day time. The mitigate measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Controlled blasting is being done with use of delay detonators and only during day time. Required mitigative measures are being adopted to control the ground vibrations and to arrest the flying rocks and boulders.
(xiv)	The total area brought under afforestation shall not be less than 291.13 ha and shall include external OB dump (Area 106.57 ha), back filling area covering 60 ha, balance excavated void (106.42 ha), along mining lease boundary, greenbelt (6 ha), safety zone (12.14 ha) and vacant/undisturbed area by planting native species in consultation with the local DFO/Agriculture dept. The density of the trees should be around 2500plants/ha.	Noted. The total area brought under afforestation will be more than 291.13 ha by end of the mine. Plantation work is ongoing in phased manner. Native species are being given preferences for plantation. Total 4824 nos of plantation done till Sep'2024.
(xv)	Backfilling shall begin from the 21 st year of mining operations. A progressive mine closure plan shall be implemented and OB generated shall be back filled covering a total area of 60 ha. Plantation shall be develop over the back filled area and on balanced of the excavated area (void) covering an area of 106.42 ha, the higher benches of which shall be gently sloped.	Not applicable as backfilling work not yet started as per approved mining plan.
(xvi)	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to MOEF and CPCB quarterly within one month of monitoring.	Regular monitoring of ground water level and quality is being done. Construction of bore well and installation of piezometers and automatic flow meters has been done. Water quality and ground water level data is being monitored and same is being submitted to SPCB, CPCB and MoEFCC. Monitoring Report for Monsoon season was submitted vide letter no. NALCO/Coal Mines Division/737/2024 dated 26.09.2024. Copy of report enclosed as Annexure 2 .

S. No	Conditions	Compliance Status / Remark
(xvii)	The Company shall put of artificial ground water recharge measures or augmentation of ground water resource. The project authority shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.	Construction of Admin office and other infrastructure building are currently under progress. Roof top water harvesting recharge pit is proposed and water harvesting pond were also proposed for artificial ground water recharge.
(xviii)	ETP also be provided for workshop and CHP waste water	Construction of 5 KLD ETP for treatment of waste water is completed and commissioning is under progress.
(xix)	A program for conservation of the endangered species found in the study area, if any, shall be formulated and implemented in consultation with the concerned Department in the State Government. Separate funds, shall be earmarked for implementation of the various activities thereunder and the status thereof shall be regularly reported to this Ministry and its Regional Office, Bhubaneswar.	No endangered species is found in the study area. However, if any endangered species is found in study area then program for conservation of the endangered species will be formulated and implemented in consultation with the concerned Department in the State Government. Separate funds will be earmarked for implementation of the various activities thereunder and the status thereof will be regularly reported to MOEFCC and its Regional Office at Bhubaneswar.
(xx)	Digital processing of the entire lease area using remote sensing techniques should be done regularly once in 3 years for monitoring land use pattern and reports submitted to MOEF and its Regional Office at Bhubaneswar.	Mining activities started on date 09.11.2022. Digital processing of the entire lease area using remote sensing techniques of Land use pattern study was carried out and its reports submitted vide our Letter No. NBC/ED(P&T)/1819 dated 09.05.2024 to MoEFCC and its Regional Office at Bhubaneswar.
(xxi)	Besides carrying out regular periodic health checkup of their workers, 10% of workers identified from work force engaged in active mining operations shall be subject to health checkup for occupational diseases, and hearing impairment, if any, through an agency such as NIOH, Ahmadabad with in period of one year and the results reported to his ministry ad to DGMS.	Occupational health surveillance is being carried out for all employees in respective time interval at Utkal Polyclinic Bhubaneswar. (Annexure 3)
(xxii)	R&R of village Dhobamalia basti shall be completed within the specified time schedule and the R&R package shall not be less than that of the National R&R policy.	R&R compensation as per the policy of Govt. of Odisha and consultation with the PAVs and PDFs in RPDAC already been approved and disbursed to the affected families.
(xxiii)	A final mine closure plan along with details of Corpus fund should be submitted to Ministry of Environment and Forest 5 years in advance of final mine closure for approval.	Not applicable as of now. Final mine closure plan along with details of Corpus fund will be submitted to the MOEFCC 5 years in advance before the mine closure for approval.
(xxiv)	Consent to operate shall be obtained before start of Mining operation.	The Consent to Operate has been obtained from State Pollution Control Board, Odisha vide Letter No.-14903/IND-I-CON-6762 dated 19.08.2022 before start of the mining operation.
B. General Conditions		
(i)	No change in Mining Technology and scope of working should be made without prior approval of the MOEF	There is no change in Mining Technology and scope of working. Prior approval of MOEFCC will be taken in case of any change in Mining Technology and scope of working.

S. No	Conditions	Compliance Status / Remark
(ii)	No change in calendar plan including excavation, quantum of mineral coal and waste should be made.	No change in calendar plan including excavation, quantum of mineral coal and waste. As of now mining operation is going on as per the approved mining plan.
(iii)	Four Ambient Air Quality Monitoring station should be established in the core zone as well as in the buffer zone for SPM, RPM, SO ₂ and NO _x monitoring location of the station should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation of the SPCB	Four Ambient Air Quality Monitoring stations are established in the core zone as well as in the buffer zone for monitoring of SPM, RPM, SO ₂ and NO _x . Monitoring locations of the station are decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation of the SPCB. NABL accredited laboratory is carrying out the monitoring work. Monitoring reports for the period Apr'24 to Sep'24 is enclosed as Annexure 4 .
(iv)	Data on ambient air quality (SPM, RPM, SO ₂ and NO _x) should be regularly submitted to the MOEF including its Regional Office , BBSR and to SPCB and CPCB once in six months	Data on ambient air quality (SPM, RPM, SO ₂ and NO _x) are regularly monitored by NABL accredited laboratory and submitted to MOEFCC New Delhi, MOEFCC Bhubaneswar, SPCB and CPCB along with Half yearly compliance report. Monitoring report enclosed as Annexure 4 .
(v)	Fugitive dust emission (SPM and RPM) from all source should be control regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dump trucks (Loading and unloading) points should be provided and properly maintained.	Fugitive dust emission (SPM and RPM) from all sources are monitored regularly and data are recorded properly. This is being submitted to the MOEFCC New Delhi, MOEFCC Bhubaneswar, SPCB and CPCB along with Half yearly compliance report. Water spraying arrangements are available for control of fugitive dust on haul roads, dumping area, stock yard, trucks loading and unloading points. 9 nos of water sprinkling tankers of capacity 14 & 28 KL tankers, 02 nos mist cannon of capacity 12 KL each and 20 nos of rain guns are used for controlling the fugitive dust inside the mines area. Apart from this 10 m height and 500 meter long wind screen is also provided along coal stock yard to control the fugitive emission. 

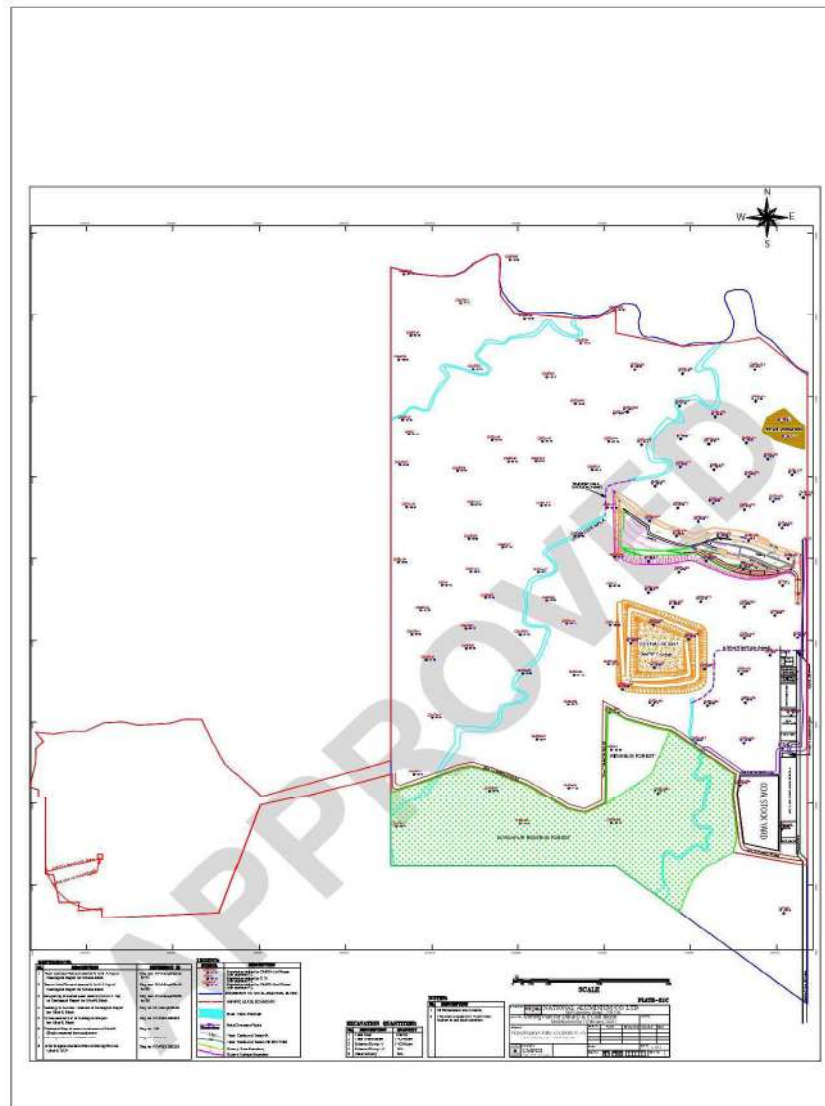
S. No	Conditions	Compliance Status / Remark
		  
(vi)	Adequate measures should be taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM etc should be provided with ear plugs/Muffs	Adequate measures are taken to control the noise levels below 85 dB(A) in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM etc are provided with ear plugs/muffs. New machineries are being used in mines. A well experience maintenance team with mobile maintenance van is engaged for maintenance of mining equipment and timely maintenance is being done to reduce noise from vehicles.
(vii)	Industrial waste water (workshop and waste water from 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 as amended from time to time before discharge. Oil and grease trap should be installed before discharge of workshop effluents.	Waste water collected from mines area is being collected in de-silting pond for treatment. This water is being used for various mining activities such as sprinkling on road, dust suppression, plantation etc. During monsoon season excess collected water is being discharge to nearby nallah after proper treatment as per the standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December, 1993 as amended from time to time. Establishment of Oil and grease trap inceptor is in progress.
(viii)	Vehicular emissions should be kept under control and regularly monitored Vehicles used for transportation the mineral should be covered with tarpaulin and optimally loaded.	Regular maintenance of mining equipment are being done to control the vehicular emissions. Truck/dumpers used for transportation of coal are being monitored regularly by PUC certificate.

S. No	Conditions	Compliance Status / Remark
		At present coal is being transported through trucks/dumper which is loaded optimally and covered with tarpaulin.
(ix)	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	We are in process of establishing Environmental laboratory. Pollution monitoring and laboratory equipment will be purchased in consultation with State Pollution Control Board.
(x)	Personnel working in dusty areas should wear protective respiration 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.	PPE are provided to all employees of mine to protect them from dust and noise. Prior training is being imparted to all working employees on job, safety and health aspects. Periodic re-fresher training are also being done for employees working inside the mine. Periodically medical examinations Annexure 3 is being carried out for all employees of mines to detect any contractions due to exposure to dust and noise and to take corrective measures, if required.
(xi)	A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the company.	A separate environmental management cell has already setup vide NALCO order no. NALCO/Coal Mines Division/336/2024 dated 11.07.2023 with suitable qualified personnel under the control of a Senior Executive, who is reporting directly to the Head of the company.
(xii)	The funds earmarked for environmental protection should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to this Ministry and its Regional Office at BBSR.	The funds earmarked for environmental protection has been kept in separate and will not diverted for any other purpose.
(xiii)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project Authorities shall extend full cooperation to the officers(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	Full cooperation will be provided to the officers(s) of the Regional Office by furnishing the requisite data/information/monitoring reports as and when required.
(xiv)	A copy of the environmental clearance letter shall be marked to concerned Panchayat/Local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.	Environment Clearance of Utkal D Coal block was granted to M/s OMC Ltd on 19.01.2007. Coal block was deallocated as per the order of Hon'ble Supreme Courte of India vide their Judgment dated 25.08.2014. Further coal block was allocated by Ministry of Coal to M/s NALCO Ltd under the Coal Mines (Special Provision) Act 2015 vide allotment order no. F.No. 103/34/2015-NA dated 02.05.2016. Same Environment Clearance was transferred from the M/s MC to NALCO. All communication to concerned Panchayat/Local NGO, if any, from whom any suggestion/representation has been received while processing the proposal was done by M/s OMC.
(xv)	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry center and Collector's Office/Tehsildar's Office for 30 days.	Not applicable

S. No	Conditions	Compliance Status / Remark
(xvi)	The Project Authorities should advertise at least in two local newspaper widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance and a copy of the clearance letter is available with the state pollution control Board and may also be seen at the website of the MOEF at http://envfor.nic.in	Environment Clearance of Utkal D Coal block was granted to M/s OMC Ltd on 19.01.2007. Coal block was deallocated as per the order of Hon'ble Supreme Court of India vide their judgment dated 25.08.2014. Further coal block was allocated by Ministry of Coal to M/s NALCO Ltd under the Coal Mines (Special Provision) Act 2015 vide allotment order no. F.No. 103/34/2015-NA dated 02.05.2016. Same Environment Clearance was transferred from the M/s OMC to NALCO.

Location of Top Soil

Plan / Plate 21C



नालको **NALCO**
NATIONAL ALUMINIUM COMPANY LIMITED
(A Government of India Enterprise)

COAL MINES DIVISION
S&P COMPLEX, Angul

EMAIL:: sudhansu.patra@nalcoindia.co.in, gm_uecb@nalcoindia.co.in

Ref No:- NALCO/ Coal Mines Division / 737/2024

Date: 26.09.2024

To
The Member Secretary
State Pollution Control Board, Odisha
Paribesh Bhawan, A/118, Nilakantha Nagar,
Unit-VIII, Bhubaneswar- 751012, Odisha.
Email: paribesh1@ospcbboard.org

Sub: Submission ground water quality and water level report for the month of August 2024 of Utkal D Coal Mines of National Aluminium Company Limited at Tehsil-Chhendipada, Angul District, Odisha.

Ref:
(i) Utkal-D Consent to Operate dated 28.03.2023: Special Condition - E 32
(ii) Utkal-D Consent to Establish dated 27.11.2020: Special Condition - B 20
(iii) Utkal-D Environment Clearance dated 29.01.2009: Specific Condition - A (xvi)
(iv) Utkal-D CGWA NOC dated 20.10.2021: Mandatory Condition - 4 & 5

Sir,

Inviting reference to the subject cited above, we are herewith submitting the ground water quality report and ground water level report for the month of August (monsoon season) of Utkal-D Coal Mine of National Aluminium Company Limited (NALCO) situated at Tehsil-Chhendipada of Angul District, Odisha.

We trust that the furnished information are in line with your requirement.

Thanking You,

Yours Faithfully,
For and on behalf of NALCO


26/09/2024

S S Patra
GGM (Coal Mines)

सुधांसु शेखर पात्रा/SUDHANSU SHEKHAR PATRA
समूह महाप्रबंधक (उत्कल खनन)/GGM (Coal Mines)
Nalco, Angul

Enclosure (s): Report of Ground Water Quality and Water Level

Copy to:

1. Director, Ministry of Environment Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi - 110003 (monitoring-ec@nic.in)
2. Deputy Director General of Forest, Integrated Regional Office, Ministry of Environment, Forest & Climate Change, Regional Office (EZ), A/3, Chandrashekharpur, Bhubaneswar - 751023 (roez.bsr-mef@nic.in)
3. Member Secretary, Central Pollution Control Board, 'Parivesh Bhawan', East Arjun Nagar, Shahdara, New Delhi - 110032 (mscb.cpcb@nic.in)
4. Zonal Office, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floor, 1582 Rajdanga Main Road, Kolkata, WB - 700107 (email: rdkolkata.cpcb@gov.in)
5. Regional Officer, State Pollution Control Board, S-3/3, Industrial Estate, Hakimpada, Angul, Odisha (email: rospcb.angul@ospcbboard.org)
6. The Member Secretary, Central Ground Water Authority, 18/11, Jamnagar, House, Man Singh Road, New Delhi-110011 (cgwa@nic.in)
7. Regional Director, Central Ground Water Board (South Eastern Region), Bhujal Bhawan, Khandagiri Chowk, Bhubneshwar, Odisha (rdser-cgwb@nic.in)



30 years of success

J.M. ENVIROLAB PVT. LTD.

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Name & Address of Unit:

M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130

Report No.:
Ref. No.:JME/WL/240822001/N
NilSample Description:
Client Representative
(Name & Designation)
Sample collected byGROUND WATER LEVEL MONITORING
Mr. S.R Jha (AGM)

Date of Reporting: 26/08/2024

JMELPL Team

GROUND WATER LEVEL MONITORING RESULTS

S. No.	Location	Latitude	Longitude	Type of well	Result (in meter)	Date of Monitoring
1.	Rajharan	20°57'2"	84°58'37"	Open Well	1.25	22/08/2024
2.	Kodapalpassi	20°58'46"	84°57'34"	Open Well	5.34	22/08/2024
3.	Similisahi	20°59'55"	84°56'36"	Open Well	4.74	22/08/2024
4.	Kosala-1	21°0'50"	84°55'53"	Open Well	0.50	22/08/2024
5.	Kosala-2	20°0'57"	84°55'36"	Open Well	1.95	22/08/2024
6.	Sendhapal	20°58'49"	84°57'47"	Open Well	6.75	22/08/2024
7.	Nisa	20°55'32"	85°0'9"	Open Well	1.18	22/08/2024
8.	Bhalugadia	20°56'45"	84°57'34"	Borewell	2.40	22/08/2024
9.	Durgapur Tangrishahi	20°55'15"	84°54'48"	Open Well	3.54	22/08/2024
10.	Durgapur	20°55'11"	84°54'18"	Open Well	4.36	22/08/2024
11.	PotogadiaKendulivi	20°56'51"	84°52'27"	Borewell	5.62	22/08/2024
12.	Matigadia	20°57'56"	84°51'36"	Open Well	1.57	22/08/2024
13.	Balipeta	20°58'31"	84°51'25"	Open Well	3.54	22/08/2024
14.	Kuskila-1	20°59'21"	84°52'45"	Open Well	5.54	22/08/2024
15.	Kuskila-2	20°59'30"	84°53'1"	Open Well	4.56	22/08/2024
16.	Bara pada	20°59'29"	84°54'12"	Open Well	1.12	22/08/2024
17.	Jhintipal	20°58'32"	84°54'10"	Open Well	2.04	22/08/2024
18.	Korada	20°57'7"	84°53'39"	Open Well	2.55	22/08/2024
19.	Mines Site(A-39)	20°56'45"	84°56'59"	Borewell	6.80	22/08/2024
20.	Mines Site(T-6)	20°57'1"	84°56'54"	Piezometer	5.13	22/08/2024
21.	Mines Site(T-7)	20°57'47"	84°57'02"	Piezometer	6.70	22/08/2024
22.	Tangrashai	20°57'43"	84°57'43"	Open Well	0.50	22/08/2024
23.	Phuljhari	21°1'36"	84°54'31"	Open Well	2.07	22/08/2024
24.	Kukurpeta	21°1'56"	84°54'8"	Open Well	3.74	22/08/2024
25.	Brahmanibil	21°2'47"	84°55'58"	Open Well	2.90	22/08/2024
26.	Kosala-3	21°0'57"	84°56'3"	Open Well	1.14	22/08/2024
27.	Kankarei	20°56'33"	84°59'12"	Open Well	2.65	22/08/2024
28.	Kalakata	20°54'25"	84°59'20"	Open Well	1.96	22/08/2024
29.	Balichanderpur	20°55'48"	84°59'53"	Open Well	1.16	22/08/2024
30.	Barihapur	21°1'54"	84°55'59"	Open Well	8.70	22/08/2024

End of Report

Srishti Mehta
Tested byAbhishek Tiwari
Checked byRaj Kumar Yadav
Authorized Signatory

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J.M. ENVIROLAB PVT. LTD.

CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/01**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Raijharan Village**
 Client Representative: **Mr. S.R Jha (AGM)**
 (Name & Designation):
 Sample collected by: **JMEPL TEAM**

Latitude: **20°57'2.0" N**
 Longitude: **84°58'37" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824001**
 Format No.: **7.5 F-01**

Party Reference: **Nil**
 Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.29	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	225.9	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	58.92	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	185.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	38.62	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	19.14	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	325.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23 rd Edition, 4500-SO ₄ -C/D/E	5.91	mg/l	200	400
15.	Fluoride as F	APHA 23 rd Edition, 4500-F- D	0.70	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.11	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.29	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23 rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23 rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23 rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Page 1 of 2

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by

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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/01**

Report No.: **JME/GW/240824001**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.06	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS: 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS: 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS: 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS: 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS: 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS: 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS: 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS: 3025 (Part-45)	40.0	mg/l	-	-
34.	Potassium as K	IS: 3025 (Part-45)	12.0	mg/l	-	-
35.	Conductivity	IS: 3025 (Part-14)	576.0	mg/l	-	-
36.	Total Suspended Solids	IS: 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
Checked by



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Gurugram-122011(Haryana)

TEST REPORT

Sample Number:	JME/NL/W/02	Report No.:	JME/GW/240824002
Name & Address of Unit:	M/s. M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130	Format No.:	7.5 F-01
Sample Description:	WATER (Ground)	Party Reference:	Nil
		Reporting Date:	30/08/2024
		Analysis Completion Date:	30/08/2024
		Analysis Start Date:	24/08/2024
		Receipt Date:	24/08/2024
		Sampling Date:	22/08/2024
Sample Location:	Kodapalpasi	Preservation:	Refrigerated
Client Representative (Name & Designation):	Mr. S.R Jha (AGM)	Sampling Type:	Grab
Sample collected by	JMEPL TEAM	Sample Quantity:	2.0 litre
		Packing Status:	Temporary Sealed
Latitude:	20°58'46" N	Parameter Required:	As per work order
Longitude:	84°57'34" E		
Protocol Used:	IS:3025 & APHA 23rd Edition 2017		

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.42	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	367.79	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	78.55	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	39.50	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	62.13	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	39.60	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	512.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23 rd Edition, 4500-SO ₄ -C/D/E	21.48	mg/l	200	400
15.	Fluoride as F	APHA 23 rd Edition, 4500-F- D	0.58	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.42	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.87	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23 rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23 rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23 rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Page 1 of 2

Srishti Mehta
Tested by

Abhishek Tiwari
Checked by

Authorised Signatory
Authorized Signatory

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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/02**

Report No.: **JME/GW/240824002**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.94	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS: 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	52.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	6.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	798.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
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Checked by



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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/03**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Simlisahi Village**
 Client Representative: **Mr. S.R Jha (AGM)**
 (Name & Designation):
 Sample collected by: **JMEPL TEAM**

Latitude: **20°59'59" N**
 Longitude: **84°56'32" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824003**
 Format No.: **7.5 F-01**

Party Reference: **Nil**
 Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.13	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	397.1	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	104.1	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	355.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	85.61	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	33.36	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	578.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23 rd Edition, 4500-SO ₄ -C/D/E	10.93	mg/l	200	400
15.	Fluoride as F	APHA 23 rd Edition, 4500-F- D	0.73	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	4.56	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.08	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23 rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23 rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23 rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

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CIN No.: U74220HR2011PTC085766

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TEST REPORT

Sample Number: **JME/NL/W/03**

Report No.: **JME/GW/240824003**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.15	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	41.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	15.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	794.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



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J.M. ENVIROLAB PVT. LTD.

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/04**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Kosala Village**
 Client Representative (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by: **JMEPL TEAM**

Latitude: **21°0'57" N**
 Longitude: **84°55'36" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824004**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.16	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	120.69	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	45.24	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	175.75	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	24.46	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	5.57	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	191.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	4.98	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.62	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.26	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.07	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by



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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/04**

Report No.: **JME/GW/240824004**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.04	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	15.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	6.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	280.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
Checked by



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TEST REPORT

Sample Number: **JME/NL/W/05**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130**

Report No.: **JME/GW/240824005**
 Format No.: **7.5 F-01**

Sample Description: **WATER (Ground)**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Sample Location: **Sendhupal**
 Client Representative (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by: **JMEPL TEAM**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

Latitude: **20°58'51" N**
 Longitude: **84°57'46" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.33	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	344.0	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	107.3	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	250.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	55.80	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	15.38	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	510.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	25.3	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.95	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.52	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.10	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

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 Srishti Mehta
 Tested by

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TEST REPORT

Sample Number: JME/NL/W/05

Report No.: JME/GW/240824005

23.	Zinc as Zn	IS: 3025 (Part-49)	0.62	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	66.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	10.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	744.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

End of Report



Page 2 of 2

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Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
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TEST REPORT

Sample Number: **JME/NL/W/06**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Nisa Village**
 Client Representative
 (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by **JMEPL TEAM**

Latitude: **20°55'36" N**
 Longitude: **85°00'05" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824006**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.95	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	273.2	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	82.06	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	160.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	59.98	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	16.59	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	498.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	25.12	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.50	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	4.06	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.28	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/06**

Report No.: **JME/GW/240824006**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.05	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	48.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	25.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	718.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



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Gurugram-122011(Haryana)

TEST REPORT

Sample Number: **JME/NL/W/07**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Bhalugadiya Village**
 Client Representative (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by: **JMEPL TEAM**

Latitude: **20°56'44" N**
 Longitude: **84°57'34" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824007**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.92	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	75.56	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	20.67	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	15.70	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	6.34	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	10.15	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	210.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	2.40	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.47	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.90	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.70	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by

Authorised Signatory
 Authorised Signatory
 Authorised Signatory

Page 1 of 2

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J.M. ENVIROLAB PVT. LTD.

CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/07**

Report No.: **JME/GW/240824007**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.07	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	12.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	7.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	238.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
Checked by



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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/08**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Durgapur Tangrishahi Village**
 Client Representative **Mr. S.R Jha (AGM)**
 (Name & Designation):
 Sample collected by **JMEPL TEAM**

Latitude: **20°55'15" N**
 Longitude: **84°54'48" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824008**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.85	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	562.2	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	46.29	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	364.1	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	132.1	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	58.35	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	758.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	60.37	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.90	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	4.08	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.11	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by



Page 1 of 2

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CIN No.: U74220HR2011PTC085766

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TEST REPORT

Sample Number: **JME/NL/W/08**

Report No.: **JME/GW/240824008**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.14	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	60.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	5.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	1132.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

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TEST REPORT

Sample Number: **JME/NL/W/09**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Durgapur Village**
 Client Representative (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by: **JMEPL TEAM**

Latitude: **20°55'11" N**
 Longitude: **84°54'18" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824009**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.08	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	570.7	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	198.5	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	46.75	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	610.3	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	21.03	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	1230.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	49.20	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.86	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.22	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.05	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
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CIN No.: U74220HR2011PTC085766

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TEST REPORT

Sample Number: **JME/NL/W/09**

Report No.: **JME/GW/240824009**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.42	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	133.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	8.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	1688.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
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Gurugram-122011(Haryana)

TEST REPORT

Sample Number: **JME/NL/W/10**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Potogadia Village**
 Client Representative (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by: **JMEPL TEAM**

Latitude: **20°56'51" N**
 Longitude: **84°52'27" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824010**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.57	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	125.5	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	35.31	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	118.5	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	9.72	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	10.34	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	162.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	7.26	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.50	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.36	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.04	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by

Authorised Signatory
 Authorised Signatory
 Authorised Signatory

Page 1 of 2

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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/10**

Report No.: **JME/GW/240824010**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.03	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	10.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	7.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	240.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
Checked by



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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/11**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **A-39 (Mine Site)**
 Client Representative
 (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by **JMEPL TEAM**

Latitude: **20°56'44" N**
 Longitude: **84°56'59" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824011**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.63	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	63.05	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	21.04	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	26.25	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	17.34	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	2.55	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	44.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	4.12	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.08	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	1.08	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.08	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/11**

Report No.: **JME/GW/240824011**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.21	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS: 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS: 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	7.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	4.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	122.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
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Gurugram-122011(Haryana)

TEST REPORT

Sample Number: **JME/NL/W/12**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130**

Sample Description: **WATER (Ground)**

Sample Location: **Balipeta Village**
 Client Representative (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by: **JMEPL TEAM**

Latitude: **20°58'31" N**
 Longitude: **84°51'25" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824012**
 Format No.: **7.5 F-01**

Party Reference: **Nil**

Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	7.18	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	315.2	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	92.58	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	398.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	44.99	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	20.42	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	720.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	62.07	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.08	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	2.52	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.12	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
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CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/12**

Report No.: **JME/GW/240824012**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.11	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	114.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	10.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	1152.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

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Srishti Mehta
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J.M. ENVIROLAB PVT. LTD.

CIN No.: U74220HR2011PTC085756

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/13**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**

Report No.: **JME/GW/240824013**
 Format No.: **7.5 F-01**

Sample Description: **WATER (Ground)**

Party Reference: **Nil**
 Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**

Sample Location: **Tengrashai Village**
 Client Representative
 (Name & Designation): **Mr. S.R Jha (AGM)**
 Sample collected by **JMEPL TEAM**

Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

Latitude: **20°57'43" N**
 Longitude: **84°57'46" E**
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.97	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	204.9	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	37.87	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	205.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	19.99	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	26.81	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	388.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23rd Edition, 4500-SO ₄ -C/D/E	4.62	mg/l	200	400
15.	Fluoride as F	APHA 23rd Edition, 4500-F- D	0.75	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	0.32	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.60	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Srishti Mehta
 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by



Page 1 of 2

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J.M. ENVIROLAB Pvt. Ltd.

CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/13**

Report No.: **JME/GW/240824013**

23.	Zinc as Zn	IS: 3025 (Part-49)	0.03	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	68.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	7.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	565.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

****End of Report****



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
Checked by



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J.M. ENVIROLAB PVT. LTD.

CIN No.: U74220HR2011PTC085766

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number: **JME/NL/W/14**
 Name & Address of Unit: **M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited
 Rajharan, Nandichhod (Village), Chhendipada (Tehsil),
 Angul District Odisha-759130**
 Sample Description: **WATER (Ground)**
 Sample Location: **Phuljhari Village**
 Client Representative **Mr. S.R Jha (AGM)**
 (Name & Designation):
 Sample collected by **JMEPL TEAM**
 Latitude: --
 Longitude: --
 Protocol Used: **IS:3025 & APHA 23rd Edition 2017**

Report No.: **JME/GW/240824014**
 Format No.: **7.5 F-01**
 Party Reference: **Nil**
 Reporting Date: **30/08/2024**
 Analysis Completion Date: **30/08/2024**
 Analysis Start Date: **24/08/2024**
 Receipt Date: **24/08/2024**
 Sampling Date: **22/08/2024**
 Preservation: **Refrigerated**
 Sampling Type: **Grab**
 Sample Quantity: **2.0 litre**
 Packing Status: **Temporary Sealed**
 Parameter Required: **As per work order**

TEST RESULTS

S. No.	Parameters	Testing Protocol	Result	Unit	Specification as per IS 10500-2012	
					Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS:3025 (Part-11)	6.68	-	6.5 to 8.5	No Relaxation
2.	Colour	IS:3025 (Part 4)	BDL (DL 1.0)	Hazen Unit	5	15
3.	Turbidity	IS:3025 (Part-10)	BDL (DL 1.0)	NTU	1	5
4.	Odour	IS:3025 (Part-5)	Agreeable	-	Agreeable	Agreeable
5.	Taste	IS:3025 (Part-8)	Agreeable	-	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	IS:3025 (Part-21)	141.9	mg/l	200	600
7.	Calcium as Ca	IS:3025 (Part-40)	23.15	mg/l	75	200
8.	Alkalinity as CaCO ₃	IS:3025 (Part-23)	90.0	mg/l	200	600
9.	Chloride as Cl	IS:3025 (Part-32)	39.99	mg/l	250	1000
10.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.20)	mg/l	0.2	1.0
11.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS:3025 (Part-46)	20.43	mg/l	30	100
13.	Total Dissolved Solids	IS:3025 (Part-16)	245.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 23 rd Edition, 4500-SO ₄ -C/D/E	7.86	mg/l	200	400
15.	Fluoride as F	APHA 23 rd Edition, 4500-F- D	0.45	mg/l	1	1.5
16.	Nitrate as NO ₃ -N	IS: 3025 (Part-34)	2.06	mg/l	45	No Relaxation
17.	Iron as Fe	IS: 3025 (Part-29)	0.16	mg/l	1	No Relaxation
18.	Aluminium as Al	APHA (23 rd edition)5440 C	BDL (DL 0.03)	mg/l	0.03	0.2
19.	Boron	IS:3025 (Part-57)	BDL (DL 0.20)	mg/l	0.5	2.4
20.	Phenolic Compounds	APHA 23 rd edition 5530-Phenols-C/D	BDL (DL 0.001)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 23 rd Edition, 5540-C	BDL (DL 0.02)	mg/l	0.2	1
22.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l	--	--

Page 1 of 2

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 Srishti Mehta
 Tested by

Abhishek Tiwari
 Abhishek Tiwari
 Checked by

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TEST REPORT

Sample Number: JME/NL/W/14

Report No.: JME/GW/240824014

23.	Zinc as Zn	IS: 3025 (Part-49)	0.14	mg/l	5	15
24.	Chromium as Cr	IS: 3025 (Part-52)	BDL (DL 0.002)	mg/l	0.05	No Relaxation
25.	Copper as Cu	IS: 3025 (Part-42)	BDL (DL 0.02)	mg/l	0.05	1.5
26.	Manganese as Mn	IS : 3025 (Part-59)	BDL (DL 0.01)	mg/l	0.1	0.3
27.	Cadmium as Cd	IS : 3025 (Part-41)	BDL (DL 0.002)	mg/l	0.003	No Relaxation
28.	Lead as Pb	IS : 3025 (Part-47)	BDL (DL 0.008)	mg/l	0.01	No Relaxation
29.	Selenium as Se	IS : 3025 (Part-56)	BDL (DL 0.005)	mg/l	0.01	No Relaxation
30.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l	0.01	No Relaxation
31.	Mercury as Hg	IS : 3025 (Part-48)	BDL (DL 0.001)	mg/l	0.001	No Relaxation
32.	Nickel	IS : 3025 (Part-54)	BDL (DL 0.005)	mg/l	0.02	No Relaxation
33.	Sodium as Na	IS : 3025 (Part-45)	12.0	mg/l	-	-
34.	Potassium as K	IS : 3025 (Part-45)	8.0	mg/l	-	-
35.	Conductivity	IS : 3025 (Part-14)	248.0	mg/l	-	-
36.	Total Suspended Solids	IS : 3025 (Part-17)	BDL (DL 1.0)	mg/l	-	-

BDL – Below Detection Limit, DL - Detection Limit

End of Report



Page 2 of 2

Srishti Mehta
Srishti Mehta
Tested by

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Abhishek Tiwari
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J.M. ENVIROLAB Pvt. Ltd.

CIN No.: U74220HR2011PTC085756

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number	JME/NL/SW/01	Report No	JME/SW/240824001
Name & Address of Unit	M/s. Utkal-D and Utkal-E Coal Mines of NALCO Limited Rajharan, Nandichhod (Village), Chhendipada (Tehsil), Angul District Odisha-759130	Format No.	7.5 F-01
Sample Description	Surface water	Reporting Date	30/08/2024
Sampling Location	Setring Pond Water (Mines)	Analysis Completion Date:	30/08/2024
Sample collected by	JMELPL Team	Analysis Start Date:	24/08/2024
Packing status:	Temporary sealed	Receipt Date	24/08/2024
Sampling & Analysis Protocol	APHA 23rd Edition 2017 and IS 3025	Sampling Date	22/08/2024
		Preservation	Refrigerated
		Sample Quantity	5.0 Liter
		Parameter Required	As per Consent

TEST RESULTS

S. No.	Parameters	Testing protocol	Result	Unit
1.	pH (at 25°C)	IS:3025 (Part- 11)	7.59	-
2.	Color	IS:3025 (Part-4)	BDL(DL 1.0)	Hazen Unit
3.	Odour	IS:3025 (Part-5)	Agreeable	-
4.	Turbidity	IS 3025 (Part 10)	BDL(DL 1.0)	NTU
5.	Total Hardness as CaCO ₃	IS 3025 (Part 21)	199.6	mg/l
6.	Calcium as Ca	IS 3025 (Part 40)	39.98	mg/l
7.	Total Alkalinity as CaCO ₃	IS 3025 (Part 23)	105.0	mg/l
8.	Chloride as Cl	IS 3025 (Part 32)	24.99	mg/l
9.	Residual free Chlorine	IS:3025 (Part-26)	BDL (DL 0.2)	mg/l
10.	Cyanide as CN	IS:3025 (Part-40)	BDL (DL 0.02)	mg/l
11.	Magnesium as Mg	IS 3025 (Part 46)	24.24	mg/l
12.	Total Dissolved Solids	IS 3025 (Part 16)	381.0	mg/l
13.	Sulphate as SO ₄	APHA (23rd edition) 4500-SO ₄ -C/D/E	77.92	mg/l
14.	Fluoride as F	APHA (23rd edition) 4500-F- D	0.58	mg/l
15.	Nitrate as NO ₃	IS 3025 (Part 34)	2.52	mg/l
16.	Iron as Fe	IS 3025 (Part 53)	0.05	mg/l
17.	Aluminium	APHA (23rd edition) 5440 C	BDL (DL 0.03)	mg/l
18.	Boron	IS:3025 (Part-57)	BDL (DL 0.2)	mg/l
19.	Phenolic Compounds	APHA 23rd edition 5530-Phenols-C/D	BDL (DL 0.002)	mg/l
20.	Anionic Detergents as MBAS	APHA 23rd Edition, 5540-C	BDL (DL 0.02)	mg/l
21.	Hexa Chromium as Cr+6	IS: 3025 (Part-52)	BDL (DL 0.03)	mg/l
22.	Selenium as Se	IS : 3025 (Part-56)	BDL(DL 0.005)	mg/l
23.	Zinc as Zn	IS 3025 (Part 49)	0.08	mg/l
24.	Manganese as Mn	IS 3025 (Part 59)	BDL(DL 0.01)	mg/l
25.	Copper as Cu	IS 3025 (Part 42)	BDL(DL 0.02)	mg/l
26.	Lead as Pb	IS 3025 (Part 47)	BDL(DL 0.008)	mg/l
27.	Mercury as Hg	IS 3025 (Part 48)	BDL(DL 0.001)	mg/l
28.	Arsenic as As	IS : 3025 (Part-37)	BDL (DL 0.002)	mg/l
29.	Sodium as Na	IS 3025 (Part 45)	52.0	mg/l
30.	Potassium as K	IS 3025 (Part 45)	16.0	mg/l
31.	Phosphate as PO ₄	IS 3025 (Part 31)	BDL(DL 0.005)	mg/l
32.	Nickel as Ni	IS 3025 (Part 54)	BDL(DL 0.005)	mg/l
33.	Dissolve Oxygen	IS 3025 (Part 38)	7.2	mg/l
34.	Chemical Oxygen Demand	IS 3025 (Part 58)	10.0	mg/l
35.	Biochemical Oxygen Demand	IS 3025 (Part 44)	2.6	mg/l
36.	Total Suspended Solids	IS 3025 (Part 17)	8.0	mg/l
37.	Conductivity	IS 3025 (Part 14)	584.0	µS/cm

End of Report

Srishti Mehta
Srishti Mehta
Tested by

Abhishek Tiwari
Abhishek Tiwari
Checked by

Authorised Signatory
Authorised Signatory
Raj Kumar Yadav
Authorized Signatory

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HEALTH CHECK REPORT

**SUMMARIZED STATEMENT**

UTKAL D & E COAL MINES
M/S UCMPL MDO OF NALCO LTD.

MEDICAL EXAMINATION 25.08.2022 TO 06-07-2024

TOTAL NO. OF EMPLOYEES UNDERGONE MEDICAL EXAMINATION	: 878
TOTAL NO. OF EMPLOYEES UNDERGONE IME	: 878
TOTAL NO. OF EMPLOYEES UNDERGONE PME	: 00
TOTAL NO. OF EMPLOYEES DECLARED FIT	: 878
TOTAL NO. OF OCCUPATIONAL DISEASES DETECTED	: 00

THIS IS TO CERTIFIED THAT NO OCCUPATIONAL DIESEASES & NO HEARING IMPAIRMENT WAS DETECTED DURING MEDICAL EXAMINATION OF EMPLOYEES' LIST ENCLOSED IN ANNEXURE-1

Thanking You

Encl:- As Above

DR. B. N. MOHAPATRA, MBBS, AFMH (Mumbai)
Occupational Health Consultant
Trained in ILO Classification of Pneumoconiosis
Specialist in Cardiology
Regd. No. 7338 (Orissa), 219 (DGPASU)
UTKAL POLYCLINIC, BBSR

**ENVIRONMENTAL MONITORING REPORT
FOR THE MONTH OF APRIL-2024**



NATIONAL ALUMINIUM COMPANY LIMITED
Coal Mine Division
Angul-759145, Odisha



My World Consultancy Services Private Limited

Plot No. 766, Telengapentha,
Cuttack, Odisha 754001

WCS/LQR/57

TEST REPORT

Report No. : WCS240404A Issue Date : 11.04.2024
NABL LIR No. : TC112252400000044F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Gopiballavpur Village (Buffer Zone)
Sample Description : Ambient Air Quality Monitoring Date of Sampling : 04.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (AIR) Sample ID No : WCS0424A01A
Environmental Condition : Clear weather Date of Receiving : 08.04.2024
Sample Collected by : WCS Laboratory Quantity of Sample : 1 No.
Date of Testing : 08.04.2024 to 10.04.2024 Sample Condition : Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	54.2	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	35	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.0	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.3	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	126.9	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahataray)


Authorized Signatory
(Mr. Pradeept Mohapatra)

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-END OF REPORT-



WCS/LQR/57

TEST REPORT

Report No.	WCS240404B	Issue Date	11.04.2024
NABL ULR No.	TC1122524000000044F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	04.04.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0424A01B
Environmental Condition	Clear weather	Date of Receiving	08.04.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.04.2024 to 10.04.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	64.1	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	37.7	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.5	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	18.0	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	161.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

Chahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)

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WCS/LQR/57

TEST REPORT

Report No.	WCS240404C	Issue Date	11.04.2024
NABL ULR No.	TC1122524000000044F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	04.04.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0424A01C
Environmental Condition	Clear weather	Date of Receiving	08.04.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.04.2024 to 10.04.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	69.4	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.3	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.9	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	16.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	228.6	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahataray)


Authorized Signatory
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No.	WCS240404D	Issue Date	11.04.2024
NABL ULR No.	TC11225240000000044F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Settling Pond (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	04.04.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0424A01D
Environmental Condition	Clear weather	Date of Receiving	08.04.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.04.2024 to 10.04.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	61.7	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.1	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.5	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	154.3	500 (As per CIO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	: WCS240503A	Issue Date	: 01.05.2024
NABL ULR No.	: TC1122524000000057F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Gopiballavpur Village (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 23.04.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0424A02A
Environmental Condition	: Clear weather	Date of Receiving	: 25.04.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 25.04.2024 to 30.04.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	54.8	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	38.2	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.2	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	18.0	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	135.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	: WCS240503B	Issue Date	: 01.05.2024
NABL ULR No.	: TC1122524000000057F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Colony Area (Buffer Zone)	Date of Sampling	: 23.04.2024
Sample Description	: Ambient Air Quality Monitoring	Sample ID No	: WCS0424A02B
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Date of Receiving	: 25.04.2024
Environmental Condition	: Clear weather	Quantity of Sample	: 1 No.
Sample Collected by	: WCS Laboratory	Sample Condition	: Good
Date of Testing	: 25.04.2024 to 30.04.2024		

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	58.3	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	40.4	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.8	80 (As per NAAQ 2009)	IS-5182 (Part-21) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	190.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	: WCS240503C	Issue Date	: 01.05.2024
NABL ULR No.	: TC1122524000000057F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Weigh Bridge (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 23.04.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0424A02C
Environmental Condition	: Clear weather	Date of Receiving	: 25.04.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 25.04.2024 to 30.04.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	79.5	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	45.3	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	268.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	: WCS240503D	Issue Date	: 01.05.2024
NABL ULR No.	: TC1122524000000057F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Settling Pond (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 23.04.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0324A02D
Environmental Condition	: Clear weather	Date of Receiving	: 25.04.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 25.04.2024 to 30.04.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	59.5	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	44.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.3	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.8	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	184.8	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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Report No.	: WCS240504	Issue Date	: 01.05.2024
NABL ULR No.	: TC1122524000000058F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	: Fugitive Emission (Core Zone)		
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)		
Environmental Condition	: Clear weather	Date of Receiving	: 25.04.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 4 No.
Date of Testing	: 25.04.2024	Sample Condition	: Good

SL No.	Sample ID No	Location	Date of Sampling	Suspended Particulate Matter (SPM)	Unit
1	WCS0424A03A	Haul Road	23.04.2024	275	µg/m ³
2	WCS0424A03B	OB Dump	23.04.2024	195	µg/m ³
3	WCS0424A03C	Unloading Point	24.04.2024	384	µg/m ³
4	WCS0424A03D	Blasting Area	24.04.2024	268	µg/m ³
Standard as per CTO No-2938				500	µg/m ³
Test Method				IS-5182 (Part-4) 1999 RA 2019	

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TEST REPORT

Report No. : WCS240505 Issue Date : 01.05.2024
NABL ULR No. : TC1122524000000059F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sample Description : Personal Sampling Analysis (Core Zone)
Sampling Plan & Method : WCS/QSP/SAMP (AIR)
Environmental Condition : Clear weather Date of Receiving : 25.04.2024
Sample Collected : WCS Laboratory Quantity of Sample : 4 No.
Date of Testing : 25.04.2024 Sample Condition : Good

Sl. No.	Sample ID No	Location	Date of Sampling	Respirable Particulate Matter (RPM)	Unit	Sample Collected Person
1	WCS0424A03E	Haul Road	23.04.2024	1.10	mg/m ³	Mr. Rames Chandra Jena
2	WCS0424A03F	OB Dump	23.04.2024	1.01	mg/m ³	Mr. Ranjit Mandal
3	WCS0424A03G	Loading Point	24.04.2024	1.14	mg/m ³	Mr. Markanda Nayak
4	WCS0424A03H	Blasting Area	24.04.2024	0.97	mg/m ³	Mr. Sonu Panday
Permissible Limit as per DGMS (Tech.) (S&T) Circular No.01 Dhanbad, Dated 21 st January 2010				3.0	mg/m ³	—
Test Method				NIOS-600-15th August, 1994		


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WCS/LQR/59

Report No.
NABL ULR No.
Name of the Client
Address

Month of Sampling
Sample Description
Sampling Plan & Method
Sample Collected by

WCS240405
TC112252400000045F
National Aluminium Company Limited
Coal Mine Division
Angul-759145, Odisha
April- 2024
Ambient Noise
WCS/QSP/SAMP (NOISE)
WCS Laboratory

TEST REPORT

Issue Date : 11.04.2024
Date of Receiving : 08.04.2024
Quantity of Sample : 04
Sample Condition : Good
Date of Analysis : 08.04.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0424N07	Gopiballavpur Village	04.04.2024	54.0	39.0	Clear Weather
WCS0424N08	Near Settling Pond	04.04.2024	63.5	41.5	Clear Weather
WCS0424N09	Near Town ship	04.04.2024	54.2	40.8	Clear Weather
WCS0424N10	Near Weigh Bridge	04.04.2024	64.6	68.5	Clear Weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40

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TEST REPORT

Report No. : WCS240506 Issue Date : 01.05.2024
NABL ULR No. : TC112252400000060F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : April- 2024 Date of Receiving : 26.04.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 27.04.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0424W11	Gopiballavpur Village	24.04.2024	51.2	38.8	Clear Weather
WCS0424W12	Near Settling Pond	24.04.2024	61.2	40.5	Clear Weather
WCS0424W13	Near Town ship	24.04.2024	52.7	42.3	Clear Weather
WCS0424W14	Near Weigh Bridge	24.04.2024	63.9	67.6	Clear Weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40

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TEST REPORT

Report No. : WCS240502A Issue Date : 01.05.2024
NABL U/LR No. : TC1122524000000056F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex,
Angul-759145, Odisha
Sampling Location : A39 Colony Area Borewell no.- 1 (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29°C, Clear Sample ID No : WCS0424W12A
Weather :
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	3	Max. 5	IS 3025 (Part-4): 2021
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	--	6.845	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	--	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.5	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	235	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.12	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	44.99	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-D): 2023
10	Iron as Fe	mg/l	0.09	1.0	IS 3025 (Part-53): 2005 RA 2019
11	Total Hardness as CaCO ₃	mg/l	146	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	35.27	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	14.09	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	20.42	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	9.9	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	130	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.5	--	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	6.3	--	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	--	IS 3025 (Part-17): 2022
21	E. Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	6	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

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(Miss. Laxmi Sahoo)

Pradip
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TEST REPORT

Report No. : WCS240502A Issue Date : 01.05.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : A39 Colony Area Borewell no.- 1 (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12A
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57):2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂ G
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42):1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59):2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39):2021
32	Phenolic compounds as C ₁₂ H ₁₀ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56):2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29):1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49):1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41):1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27):1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47):1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48):1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37):2022

Chahatany
Reviewed by
(Mr. Bijaya Kumar Chahatany)

Authorized Signatory
(Mr. Pradeep Mazumdar)



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TEST REPORT

Report No. : WCS240502B Issue Date : 01.05.2024
NABL ULR No. : TC1122524000000056F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : A39 Colony Area Borewell no.- 2 (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12B
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	4	Max. 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	5.956	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.4	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	146	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.06	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	24.99	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-D): 2023
10	Iron as Fe	mg/l	0.13	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	26	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	9.62	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	0.89	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	11.12	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	1.8	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	15	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.2	—	IS 3025 (Part-45): 1991 RA 2019
19	Sodium as Na	mg/l	5.9	—	IS 3025 (Part-45): 1991 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	—	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	4	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

Reviewed by
(Mr. Bijaya Kumar Chahatary)
N.B.:

Authorized Signatory for Microbiology
(Miss. Laxmi Sahoo)

Authorized Signatory for Chemistry
(Mr. Pradeep Mishra)

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TEST REPORT

Report No. : WCS240502B Issue Date : 01.05.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : A39 Colony Area Borewell no.- 2 (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12B
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57): 2021
28	Chloramines as Cl ₂	mg/l	>0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42): 1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59): 2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39): 2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56): 2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29): 1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49): 1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41): 1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27): 1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47): 1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48): 1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37): 2022

Phachataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep
Authorized Signatory
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No. : WCS240502C Issue Date : 01.05.2024
NABL ULR No. : TC1122524000000056F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Dhobamaliya Village, Dug well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Sample ID No : WCS0424W12C
Weather :
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	4	Max. 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	5.960	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste/Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.5	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	154	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.04	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	19.99	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	<0.02	1.0	APHA 24 th Ed. (4500-F-02): 2023
10	Iron as Fe	mg/l	0.12	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	22.6	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	7.21	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	1.12	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	6.34	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	2.4	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	30	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	<0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	5.2	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	7.6	—	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	<5	—	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

Reviewed by
(Mr. Bijaya Kumar Chahataray)

Authorized Signatory for Microbiology
(Miss. Laxmi Sahoo)

Authorized Signatory for Chemistry
(Mr. Pradeep Kumar)

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TEST REPORT

Report No. : WCS240502C Issue Date : 01.05.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Dhobamaliya Village, Dag Well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12C
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57): 2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42): 1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59): 2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39): 2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56): 2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29): 1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49): 1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41): 1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27): 1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47): 1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48): 1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37): 2022

Chahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No. : WCS240502D Issue Date : 01.05.2024
NABL ULR No. : TC1122524000000056F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Raijharana Village, Dug Well (Buffer zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12D
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	1	Max: 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	7.584	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.5	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	258	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.66	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	51.98	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	<0.02	1.0	APHA 24 th Ed. (4500-F-D): 2023
10	Iron as Fe	mg/l	0.05	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	46	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	13.63	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	7.78	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	3.98	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	2.4	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	70	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	<0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	5.3	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	8.1	—	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	<5	—	IS 3025 (Part-17): 2022
21	E. Coli	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

Reviewed by
(Mr. Bijaya Kumar Chahataray)

Authorized Signatory for Microbiology
(Miss. Laxmi Sahoo)

Authorized Signatory for Chemical
(Mr. Pradeep M. Gupta)

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TEST REPORT

Report No. : WCS240502D Issue Date : 01.05.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Rajharana Village, Dug Well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12D
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

SL No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57): 2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂ G
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42): 1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59): 2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39): 2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56): 2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29): 1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49): 1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41): 1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27): 1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47): 1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48): 1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37): 2022

Chahataray

Reviewed by
(Mr. Bijaya Kumar Chahataray)

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TEST REPORT

Report No. : WCS240502E Issue Date : 01.05.2024
NABL ULR No. : TC112252400000056F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Gopiballavpur Village, Dug Well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Sample ID No : WCS0424W12E
Weather :
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	4	Max. 5	IS 3025 (Part-4): 2021
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	--	7.594	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	--	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.8	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	342	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.16	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	53.48	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-13): 2023
10	Iron as Fe	mg/l	0.25	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	96	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	17.64	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	12.64	30	APHA 24 th Ed. (3500-Mg-8): 2023
14	Nitrate as NO ₃	mg/l	1.38	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	5.6	200	IS 3025 (Part-24 Sec-1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	285	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.3	--	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	8.6	--	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	--	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

Reviewed by
(Mr. Bijaya Kumar Chahatray)

Authorized Signatory for Microbiology
(Miss. Laxmi Sahoo)

Authorized Signatory for Chemistry
(Mr. Pradeep Mohapatra)

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WCS/LQR/60

TEST REPORT

Report No. : WCS240502E Issue Date : 01.05.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Gopiballavpur Village, Dug Well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12E
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57):2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APIHA 4900-Cl G
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42):1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59):2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39):2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56):2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29):1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49):1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41):1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27):1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47):1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48):1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APIHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37):2022

Chahatany
Reviewed by
(Mr. Bijaya Kumar Chahatany)

Pradeep
Authorized Signatory
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No. : WCS240502F Issue Date : 01.05.2024
NABL ULR No. : TC1122524000000056F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Kosula Village, Dug Well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Sample ID No : WCS0424W12F
Weather :
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	2	Max, 5	IS 3025 (Part-4): 2021
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	--	6.987	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	--	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.2	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	312	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.09	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	46.49	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	<0.02	1.0	APHA 24 th Ed. (4500-F-Dr): 2023
10	Iron as Fe	mg/l	0.042	1.0	IS 3025 (Part-53): 2001 RA 2019
11	Total Hardness as CaCO ₃	mg/l	46	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	15.23	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	1.94	30	APHA 24 th Ed. (3500-Mg-Br): 2023
14	Nitrate as NO ₃	mg/l	5.22	45	APHA 24 th Ed. (4500-NO ₃ -Br): 2023
15	Sulphate as SO ₄	mg/l	3.1	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	55	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	<0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.5	--	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	6.3	--	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	<5	--	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	<2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

Reviewed by
(Mr. Bijaya Kumar Chahataray)

Authorized Signatory for Microbiology
(Miss. Laxmi Sahoo)

Authorized Signatory for Chemical
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No. : WCS240502F Issue Date : 01.05.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Kosala Village, Dug Well (Buffer Zone)
Sample Description : Ground Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W12F
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

SL No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57):2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl G
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42):1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59):2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39):2021
32	Phenolic compounds as C ₁₂ H ₁₀ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56):2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29):1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49):1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41):1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27):1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47):1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48):1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37):2022

Chahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohan
Authorized Signatory
(Mr. Pradeep Mohan)
Shubaneswar

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Report No.
NABL ULR No.
Name of the Client
Address

TEST REPORT

WCS240501A Issue Date : 01.05.2024
TC1122524000000055F
National Aluminium Company Limited
Smelter & Power (S&P) Complex
Angul-759145, Odisha
Mines Discharge Water (Core Zone)
Surface Water Date of Sampling : 24.04.2024
WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Temperature 29 °C, Clear Weather Sample ID No : WCS0424W11A
WCS Laboratory Quantity of Sample : 1 Ltr
25.04.2024 to 30.04.2024 Sample Condition : Good

Sampling Location
Sample Description
Sampling Plan & Method
Environmental Condition
Sample Collected by
Date of Testing

Sl. No.	Parameter	Unit	Result	Permissible Limit as per Consent Order No-5459/IND-1-CON-6762 Dt:28.03.2023	Test Methods
1	pH Value	-	7.59	5.5-9.0	IS 3025 (Part-11): 2022
2	Total suspended Solid	mg/l	21	100	IS 3025 (Part-17):1984 RA 2012
3	Oil & Grease	mg/l	<4	10	APHA 24 th Ed. (5520-B): 2023
4	Biochemical Oxygen Demand as BOD	mg/l	2.7	-	IS 3025 (Part-44): 1993
5	Chemical Oxygen Demand as COD	mg/l	7.3	250	APHA 24 th Ed. (5220-D): 2023
6	Colour	Hazen	10	-	IS 3025 (Part-4): 2021
7	Specific Conductivity	µs/cm	452	-	IS 3025 (Part-14): 2013
8	Turbidity	NTU	75.3	-	IS 3025 (Part-10): 1984 RA 2017
9	Dissolve Oxygen as DO	mg/l	5	-	IS 3025 (Part-38): 1989
10	Total Hardness as CaCO ₃	mg/l	85	-	APHA 24 th Ed. (2340-C): 2023
11	Chloride as Cl ⁻	mg/l	44.99	-	IS 3025 (Part-32): 1988
12	Sulphate as SO ₄	mg/l	58.3	-	IS 3025 (Part-24; Sec-I): 2022
13	Nitrate as NO ₃	mg/l	2.06	-	APHA 24 th Ed. (4500-NO ₃ -B): 2023
14	Calcium as Ca	mg/l	15.23	-	APHA 24 th Ed. (3500-Ca-B): 2023
15	Magnesium as Mg	mg/l	11.66	-	APHA 24 th Ed. (3500-Mg-B): 2023
16	Total Dissolved Solid as TDS	mg/l	254	-	IS 3025 (Part-16): 1984
17	Total Alkalinity as CaCO ₃	mg/l	125	-	IS 3025 (Part-23): 1986 RA 2019
18	Potassium as K	mg/l	16.3	-	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	26.3	-	IS 3025 (Part-45): 1993 RA 2019

Bijaya Kumar Chahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)



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TEST REPORT

Report No. : WCS240501B Issue Date : 01.05.2024
NABL ULR No. : TC1122524000000055F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Seepage Water (Core Zone)
Sample Description : Surface Water Date of Sampling : 24.04.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 25.04.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0424W11B
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 25.04.2024 to 30.04.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Permissible Limit as per Consent Order No-5059/IND-I-CON-6762 Dt:28.03.2023	Test Methods
1	pH Value	--	7.25	5.5-9.0	IS 3025 (Part-11): 2022
2	Total suspended Solid	mg/l	25	100	IS 3025(Part-17)1984 RA 2012
3	Oil & Grease	mg/l	<4	10	APHA 24 th Ed (5520-B): 2023
4	Biochemical Oxygen Demand as BOD	mg/l	<2	--	IS 3025 (Part-44): 1993
5	Chemical Oxygen Demand as COD	mg/l	4	250	APHA 24 th Ed (5220-D): 2023
6	Colour	Hazen	10	--	IS 3025 (Part-4): 2021
7	Specific Conductivity	µs/cm	336.2	--	IS 3025 (Part-14): 2013
8	Turbidity	NTU	45.2	--	IS 3025 (Part-10): 1984 RA 2017
9	Dissolve Oxygen as DO	mg/l	6.2	--	IS 3025 (Part-38): 1989
10	Total Hardness as CaCO ₃	mg/l	72	--	APHA 24 th Ed (2340-C): 2023
11	Chloride as Cl	mg/l	52.98	--	IS 3025 (Part-32): 1988
12	Sulphate as SO ₄	mg/l	39.6	--	IS 3025 (Part-24, Sec-1): 2022
13	Nitrate as NO ₃	mg/l	<1	--	APHA 24 th Ed (4500-NO ₃ -B): 2023
14	Calcium as Ca	mg/l	19.24	--	APHA 24 th Ed (3500-Ca-B): 2023
15	Magnesium as Mg	mg/l	5.83	--	APHA 24 th Ed (3500-Mg-B): 2023
16	Total Dissolved Solid as TDS	mg/l	254	--	IS 3025 (Part-16): 1984
17	Total Alkalinity as CaCO ₃	mg/l	130	--	IS 3025 (Part-23): 1986 RA 2019
18	Potassium as K	mg/l	5.2	--	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	4.8	--	IS 3025 (Part-45): 1993 RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahatary)


Authorized Signatory
(Mr. Pradeep Mohapatra)



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**ENVIRONMENTAL MONITORING REPORT
FOR THE MONTH OF MAY-2024**



NATIONAL ALUMINIUM COMPANY LIMITED
Coal Mine Division
Angul-759145, Odisha



My World Consultancy Services Private Limited

Plot No. 766, Telengapentha,
Cuttack, Odisha 754001

WCS/LQR/57

TEST REPORT

Report No.	WCS240515A	Issue Date	11.05.2024
NABL ULR No.	TC1122524000000069F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Gopiballavpur Village (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	06.05.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0524A01A
Environmental Condition	Clear weather	Date of Receiving	08.05.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.05.2024 to 10.05.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	52.2	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	35.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.8	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	15.8	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	140.2	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
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(Mr. Pradeept Mohapatra)

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TEST REPORT

TC-11225

Report No.	WCS240515B	Issue Date	: 11.05.2024
NABL ULR No.	TC1122524000000069F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 06.05.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0524A01B
Environmental Condition	Clear weather	Date of Receiving	: 08.05.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	08.05.2024 to 10.05.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	67.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.1	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.8	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	201.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

Reviewed by
(Mr. Bijaya Kumar Chahataray)

Authorized Signatory
(Mr. Pradeept Mohapatra)

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TEST REPORT

Report No.	WCS240515C	Issue Date	: 11.05.2024
NABL ULR No.	TC1122524000000069F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 06.05.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0524A01C
Environmental Condition	Clear weather	Date of Receiving	: 08.05.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	08.05.2024 to 10.05.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	76.7	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006-RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	44	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.5	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001-RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.1	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006-RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	276.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999-RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahataray)


Authorized Signatory
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TEST REPORT

Report No.	: WCS240515D	Issue Date	: 11.05.2024
NABL ULR No.	: TC1122524000000069F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Settling Pond (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 06.05.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0524A01D
Environmental Condition	: Clear weather	Date of Receiving	: 08.05.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 08.05.2024 to 10.05.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	71.3	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.5	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	18.5	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	179.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeept Mohapatra
Authorized Signatory
(Mr. Pradeept Mohapatra)

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WCS/LQR/57

TEST REPORT

Report No. : WCS240531A Issue Date : 27.05.2024
NABL ULR No. : TC1122524000000085F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Gopiballavpur Village (Buffer Zone)
Sample Description : Ambient Air Quality Monitoring Date of Sampling : 21.05.2024
Sampling Plan & Method : WCS/QSP/SAMP (AIR) Sample ID No : WCS0524A04A
Environmental Condition : Clear weather Date of Receiving : 23.05.2024
Sample Collected by : WCS Laboratory Quantity of Sample : 1 No.
Date of Testing : 23.05.2024 to 25.05.2024 Sample Condition : Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	57.5	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	37.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.7	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	16.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	135.9	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240531B	Issue Date	27.05.2024
NABL ULR No.	TC1122524000000085F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	21.05.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0524A04B
Environmental Condition	Clear weather	Date of Receiving	23.05.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	23.05.2024 to 25.05.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	70.1	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.2	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	18.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	206.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240531C	Issue Date	: 27.05.2024
NABL ULR No.	TC1122524000000085F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 21.05.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0524A04C
Environmental Condition	Clear weather	Date of Receiving	: 23.05.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	23.05.2024 to 25.05.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	72.8	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.6	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.2	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.5	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	274.8	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No. : WCS240531D Issue Date : 27.05.2024
NABL ULR No. : TC1122524000000085F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Near Settling Pond (Core Zone)
Sample Description : Ambient Air Quality Monitoring Date of Sampling : 21.05.2024
Sampling Plan & Method : WCS/QSP/SAMP (AIR) Sample ID No : WCS0524A04D
Environmental Condition : Clear weather Date of Receiving : 23.05.2024
Sample Collected by : WCS Laboratory Quantity of Sample : 1 No.
Date of Testing : 23.05.2024 to 25.05.2024 Sample Condition : Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	67.1	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.0	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.1	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	177.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019



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TEST REPORT

Report No. : WCS240516 Issue Date : 11.05.2024
NABL ULR No. : TC112252400000070F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : May- 2024 Date of Receiving : 08.05.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 08.05.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0524N01	Gopiballavpur Village	06.05.2024	50.2	39	Clear Weather
WCS0524N02	Near Settling Pond	06.05.2024	62.6	41	Clear Weather
WCS0524N03	Near Town ship	06.05.2024	54.4	42.8	Clear Weather
WCS0524N04	Near Weigh Bridge	06.05.2024	64.5	68.6	Clear Weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40



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TEST REPORT

TC-11225

Report No. : WCS240533 Issue Date : 27.05.2024
NABL ULR No. : TC1122524000000087F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : May- 2024 Date of Receiving : 23.05.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 23.05.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0524N08	Gopiballavpur Village	21.05.2024	53.6	37.5	Clear Weather
WCS0524N09	Near Settling Pond	21.05.2024	60.9	42.6	Clear Weather
WCS0524N10	Near Town ship	21.05.2024	53.6	43.1	Clear Weather
WCS0524N11	Near Weigh Bridge	21.05.2024	62.8	67.5	Clear Weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40

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TEST REPORT

Report No.	WCS240532	Issue Date	: 27.05.2024
NABL ULR No.	TC1122524000000086F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	Fugitive Emission (Core Zone)		
Sampling Plan & Method	WCS/QSP/SAMP (AIR)		
Environmental Condition	Clear weather	Date of Receiving	: 23.05.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 4 Nos.
Date of Testing	23.05.2024	Sample Condition	: Good

Sl. No.	Sample ID No	Location	Date of Sampling	Suspended Particulate Matter (SPM)	Unit
1	WCS0524A05A	Haul Road	21.05.2024	282	µg/m ³
2	WCS0524A05B	OB Dump	21.05.2024	198	µg/m ³
3	WCS0524A05C	Unloading Point	21.05.2024	396	µg/m ³
4	WCS0524A05D	Blasting Area	21.05.2024	258	µg/m ³
Standard as per CTO No-2938				500	µg/m ³
Test Method				IS-5182 (Part-4) 1999 RA 2019	


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TEST REPORT

TC-11228

Report No.	± WCS240534	Issue Date	± 27.05.2024
NABL ULR No.	± TC112252400000088F		
Name of the Client	± National Aluminium Company Limited		
Address	± Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	± Personal Sampling Analysis (Core Zone)		
Sampling Plan & Method	± WCS/QSP/SAMP (AIR)		
Environmental Condition	± Clear weather	Date of Receiving	± 23.05.2024
Sample Collected	± WCS Laboratory	Quantity of Sample	± 4 No.
Date of Testing	± 23.05.2024	Sample Condition	± Good

Sl. No.	Sample ID No	Location	Date of Sampling	Respirable Particulate Matter (RPM)	Unit	Sample Collected Person
1	WCS0524A05E	Haul Road	21.05.2024	1.26	mg/m ³	Mr. Ramesh Chandra Jena
2	WCS0524A05F	OB Dump	21.05.2024	1.19	mg/m ³	Mr. Ranjit Mandal
3	WCS0524A05G	Loading Point	21.05.2024	1.08	mg/m ³	Mr. Markanda Nayak
4	WCS0524A05H	Blasting Area	21.05.2024	0.89	mg/m ³	Mr. Sona Panday
Permissible Limit as per DGMS (Tech.) (S&T) Circular No.01 Dhanbad, Dated 21 st January 2010				3.0	mg/m ³	--
Test Method				NIOS-600-15th August, 1994		


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**ENVIRONMENTAL MONITORING REPORT
FOR THE MONTH OF JUNE-2024**



NATIONAL ALUMINIUM COMPANY LIMITED
Coal Mine Division
Angul-759145, Odisha



My World Consultancy Services Private Limited

Plot No. 766, Telengapentha,
Cuttack, Odisha 754001

WCS/LQR/57

TEST REPORT

Report No.	: WCS240606A	Issue Date	: 12.06.2024
NABL ULR No.	: TC1122524000000093F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Gopiballavpur Village (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 04.06.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0624A/HA
Environmental Condition	: Clear weather	Date of Receiving	: 07.06.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 08.06.2024 to 10.06.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	58.0	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	36.2	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.0	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	15.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	142.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	: WCS240606B	Issue Date	: 12.06.2024
NABL ULR No.	: TC1122524000000093F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Colony Area (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 04.06.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0624A01B
Environmental Condition	: Clear weather	Date of Receiving	: 07.06.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 08.06.2024 to 10.06.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	66.4	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	43.8	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	199.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Pradept Mohapatra

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TEST REPORT

Report No.
NABL ULR No.
Name of the Client
Address

WCS240606C
TC1122524000000093F
National Aluminium Company Limited
Smelter & Power (S&P) Complex
Angul-759145, Odisha
Near Weigh Bridge (Core Zone)
Ambient Air Quality Monitoring
WCS/QSP/SAMP (AIR)
Clear weather
WCS Laboratory
08.06.2024 to 10.06.2024

Issue Date : 12.06.2024

Sampling Location
Sample Description
Sampling Plan & Method
Environmental Condition
Sample Collected by
Date of Testing

Date of Sampling : 04.06.2024
Sample ID No : WCS0624A01C
Date of Receiving : 07.06.2024
Quantity of Sample : 1 No.
Sample Condition : Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	74.9	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	43.0	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.8	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.8	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	268.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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TEST REPORT

Report No.	: WCS240606D	Issue Date	: 12.06.2024
NABL ULR No.	: TC1122524000000093F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Settling Pond (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 04.06.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0624A01D
Environmental Condition	: Clear weather	Date of Receiving	: 07.06.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 08.06.2024 to 10.06.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	70.4	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	44.4	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	18.0	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	183.7	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No. : WCS240607 Issue Date : 12.06.2024
NABL ULR No. : TC112252400000094F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : June- 2024 Date of Receiving : 07.06.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 08.06.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0624N01	Gopiballavpur Village	04.06.2024	52.4	38	Clear Weather
WCS0624N02	Near Settling Pond	04.06.2024	61.5	41.8	Clear Weather
WCS0624N03	Near Town ship	05.06.2024	52.8	42.6	Clear Weather
WCS0624N04	Near Weigh Bridge	05.06.2024	63.4	68.4	Clear Weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40


Reviewed by
(Mr. Bijaya Kumar Chahataray)


Authorized Signatory
(Mr. Pradeep Mohapatra)

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WCS/LQR/57

TEST REPORT

Report No.	: WCS240614A	Issue Date	: 29.06.2024
NABL ULR No.	: TC11225240000000101F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Gopiballavpur Village (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 19.06.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0624A02A
Environmental Condition	: Low rain weather	Date of Receiving	: 22.06.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 24.06.2024 to 27.06.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	51	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	32	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	15.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	128.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019



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TEST REPORT

Report No.	WCS240614B	Issue Date	29.06.2024
NABL ULR No.	TC11225240000000101F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	19.06.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0624A02B
Environmental Condition	Low rain weather	Date of Receiving	22.06.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	24.06.2024 to 27.06.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	62.1	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	40.3	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	188.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019



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TEST REPORT

Report No.	: WCS240614C	Issue Date	: 29.06.2024
NABL ULR No.	: TC11225240000000101F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Weigh Bridge (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 19.06.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0624A02C
Environmental Condition	: Low rain weather	Date of Receiving	: 22.06.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 24.06.2024 to 27.06.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	69.4	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	17.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	245.1	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240614D	Issue Date	29.06.2024
NABL ULR No.	TC11225240000000101F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Settling Pond (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	19.06.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0624A02D
Environmental Condition	Low rain weather	Date of Receiving	22.06.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	24.06.2024 to 27.06.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	63.5	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	40.5	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.2	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	38.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	149.6	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No. : WCS240615 Issue Date : 29.06.2024
NABL ULR No. : TC1122524000000102F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : June- 2024 Date of Receiving : 22.06.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 24.06.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0624N05	Gopiballavpur Village	19.06.2024	53.6	39.4	Low rain weather
WCS0624N06	Near Settling Pond	19.06.2024	62.4	42	Low rain weather
WCS0624N07	Near Town ship	19.06.2024	54.8	43.8	Low rain weather
WCS0624N08	Near Weigh Bridge	19.06.2024	64.8	66.4	Low rain weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40


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TEST REPORT

Report No.	: WCS240616	Issue Date	: 29.06.2024
NABL ULR No.	: TC11225240000000103F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	: Fugitive Emission (Core Zone)		
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)		
Environmental Condition	: Low rain weather	Date of Receiving	: 22.06.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 4 Nos.
Date of Testing	: 24.06.2024	Sample Condition	: Good

Sl. No.	Sample ID No	Location	Date of Sampling	Suspended Particulate Matter (SPM)	Unit
1	WCS0624A09A	Haul Road	19.06.2024	229	$\mu\text{g}/\text{m}^3$
2	WCS0624A09B	OB Dump	19.06.2024	184	$\mu\text{g}/\text{m}^3$
3	WCS0624A09C	Unloading Point	20.06.2024	362	$\mu\text{g}/\text{m}^3$
4	WCS0624A09D	Blasting Area	20.06.2024	210	$\mu\text{g}/\text{m}^3$
Standard as per CTO No-2938				500	$\mu\text{g}/\text{m}^3$
Test Method				IS-5182 (Part-4) 1999 RA 2019	


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TEST REPORT

Report No. : WCS240617 Issue Date : 29.06.2024
NABL ULR No. : TC11225240000000104F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sample Description : Personal Sampling Analysis (Core Zone)
Sampling Plan & Method : WCS/QSP/SAMP (AIR)
Environmental Condition : Low rain weather Date of Receiving : 22.06.2024
Sample Collected : WCS Laboratory Quantity of Sample : 4 No.
Date of Testing : 24.06.2024 Sample Condition : Good

Sl. No.	Sample ID No	Location	Date of Sampling	Respirable Particulate Matter (RPM)	Unit	Sample Collected Person
1	WCS0624A09E	Haul Road	19.06.2024	1.22	mg/m ³	Mr. Ramesh Chandra Jena
2	WCS0624A09F	OB Dump	19.06.2024	1.02	mg/m ³	Mr. Ranjit Mandal
3	WCS0624A09G	Loading Point	20.06.2024	1.10	mg/m ³	Mr. Markanda Nayak
4	WCS0624A09H	Blasting Area	20.06.2024	1.06	mg/m ³	Mr. Sonu Panday
Permissible Limit as per DGMS (Tech.) (S&T) Circular No.01 Dhanbad, Dated 21 st January 2010				3.0	mg/m ³	--
Test Method				NIOS-600-15th August, 1994		


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**ENVIRONMENTAL MONITORING REPORT
FOR THE MONTH OF JULY-2024**



NATIONAL ALUMINIUM COMPANY LIMITED
Coal Mine Division
Angul-759145, Odisha



My World Consultancy Services Private Limited

Plot No. 766, Telengapentha,
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TEST REPORT

Report No.	WCS240707A	Issue Date	12.07.2024
NABL ULR No.	TC1122524000000110F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Gopiballavpur Village (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	04.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0724A01A
Environmental Condition	Light Rain	Date of Receiving	08.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.07.2024 to 10.07.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	53.0	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	33.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	139.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Miss. Laxmi Sahoo)


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(Mr. Diganta Krishna Ray)

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TEST REPORT

Report No.	WCS240707B	Issue Date	: 12.07.2024
NABL ULR No.	TC1122524000000110F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 04.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No.	: WCS0724A01B
Environmental Condition	Light Rain	Date of Receiving	: 08.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	08.07.2024 to 10.07.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	64.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.4	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	18.0	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	190.2	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240707C	Issue Date	12.07.2024
NABL ULR No.	TC11225240000000110F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	04.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0724A01C
Environmental Condition	Light Rain	Date of Receiving	08.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.07.2024 to 10.07.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	70.2	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	40.5	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.9	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	249.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240707D	Issue Date	12.07.2024
NABL ULR No.	TC11225240000000110F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Settling Pond (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	04.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No.	WCS0724A01D
Environmental Condition	Light Rain	Date of Receiving	08.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	08.07.2024 to 10.07.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	65.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	43.0	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	152.7	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No. : WCS240708 Issue Date : 12.07.2024
NABL ULR No. : TC11225240000000111F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : July- 2024 Date of Receiving : 08.07.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 09.07.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0724N01	Gopiballavpur Village	04.07.2024	54.0	40.2	Light Rain
WCS0724N02	Near Settling Pond	04.07.2024	63.8	41.0	Light Rain
WCS0724N03	Near Town ship	05.07.2024	53.4	42.8	Light Rain
WCS0724N04	Near Weigh Bridge	05.07.2024	63.5	65.9	Light Rain
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40


Reviewed by
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WCS/LQR/60

TEST REPORT

Report No. : WCS240711A Issue Date : 24.07.2024
NABL ULR No. : TC1122524000000114F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : New Colony
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04A
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	2	Max. 5	IS 3025 (Part-4): 2021
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	--	6.912	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	--	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.2	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	30.23	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.1	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	9	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-D): 2023
10	Iron as Fe	mg/l	0.05	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	38	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	14.43	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	0.49	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	15.25	45	APHA 24 th Ed. (4500-NO ₃ -H): 2023
15	Sulphate as SO ₄	mg/l	8.4	200	IS 3025 (Part-24 Sec. 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	15	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4	--	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	6.6	--	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	--	IS 3025 (Part-17): 2022
21	E. Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019


Reviewed by
(Miss. Laxmi Sahoo)


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(Mr. Diganta Krishna Ray)

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TEST REPORT

Report No. : WCS240711A Issue Date : 24.07.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : New Colony
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04A
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 33): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex E of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57):2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or ALPHA 4500-CL G
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42):1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59):2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39):2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56):2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29):1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49):1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41):1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27):1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47):1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48):1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	ALPHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37):2022


Reviewed by
(Miss. Laxmi Sahoo)

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TEST REPORT

Report No. : WCS240711B Issue Date : 24.07.2024
NABL ULR No. : TC1122524000000114F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Old Colony
Sampling Location : Ground Water Date of Sampling : 18.07.2024
Sample Description : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Sampling Plan & Method : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04B
Environmental Condition : WCS Laboratory Quantity of Sample : 1 Ltr
Sample Collected by : 20.07.2024 to 24.07.2024 Sample Condition : Good
Date of Testing :

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	2	Max. 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	6.745	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.1	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	29.82	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.04	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	9	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-10): 2023
10	Iron as Fe	mg/l	0.1	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	24	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	6.41	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	1.94	30	APHA 24 th Ed. (3500-Mg-48): 2023
14	Nitrate as NO ₃	mg/l	10.12	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	1.5	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	15	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.4	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	6	—	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	—	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019


Reviewed by
(Miss. Laxmi Sahoo)


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(Mr. Diganta Krishna Ray)

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TEST REPORT

Report No. : WCS240711B Issue Date : 24.07.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Old Colony
Sampling Location : Old Colony
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04B
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57):2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂ C
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42):1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59):2006 RA 2013
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39):2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56):2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29):1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49):1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41):1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27):1986 RAA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47):1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48):1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37):2022


Reviewed by
(Miss. Laxmi Sahoo)


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TEST REPORT

Report No. : WCS240711C Issue Date : 24.07.2024
NABL ULR No. : TC11225240000000114F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Near Settling Pond (Bore Well)
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04C
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	2	Max. 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	6.748	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.4	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	260	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.15	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	44.49	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-ID): 2023
10	Iron as Fe	mg/l	0.05	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	144	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	32.87	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	16.64	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	22.5	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	10.02	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	120	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.5	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	6.6	—	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	—	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622: 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622: 1981 RA 2019
23	Total Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622: 1981 RA 2019


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TEST REPORT

Report No. : WCS240711C Issue Date : 24.07.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Near Settling Pond (Bore Well)
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04C
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57): 2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42): 1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59): 2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39): 2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56): 2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29): 1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49): 1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41): 1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27): 1986 RA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47): 1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48): 1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37): 2022


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TEST REPORT

Report No. : WCS240711D Issue Date : 24.07.2024
NABL ULR No. : TC1122524000000114F
Name of the Client : **National Aluminium Company Limited**
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : **Gopiballabpur Village**
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04D
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	4	Max. 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	7.24	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.6	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	340	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.15	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	52.5	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-D): 2023
10	Iron as Fe	mg/l	0.22	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	90	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	16.83	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	11.66	30	APHA 24 th Ed. (3500-Mg-B): 2023
14	Nitrate as NO ₃	mg/l	1.25	45	APHA 24 th Ed. (4500-NO ₃ -B): 2023
15	Sulphate as SO ₄	mg/l	5.2	200	IS 3025 (Part-24 Sec. 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	275	200	IS 3025 (Part-23): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	8.2	—	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	< 5	—	IS 3025 (Part-17): 2022
21	E.Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019



Reviewed by
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TEST REPORT

Report No. : WCS240711D Issue Date : 24.07.2024
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Gopiballapur Village
Sample Description : Ground Water Date of Sampling : 18.07.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 20.07.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS2407W04D
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 20.07.2024 to 24.07.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
24	Aluminium as Al	mg/l	<0.02	0.03	IS 3025 (Part 55): 2003 RA 2019
25	Anionic detergents as MBAS	mg/l	<0.02	0.2	Annex K of IS 13428
26	Barium as Ba	mg/l	<0.1	0.7	Annex F of IS 13428* or IS 15302
27	Boron as B	mg/l	<0.1	0.5	IS 3025 (Part 57):2021
28	Chloramines as Cl ₂	mg/l	<0.02	4.0	IS 3025 (Part 26): 2021* or APHA 4500-Cl ₂ G
29	Copper as Cu	mg/l	<0.01	0.05	IS 3025 (Part 42):1992 RA 2019
30	Manganese as Mn	mg/l	<0.05	0.1	IS 3025 (Part 59):2006 RA 2017
31	Mineral oil	mg/l	<0.5	1.0	Clause 6 of IS 3025 (Part 39):2021
32	Phenolic compounds as C ₆ H ₅ OH	mg/l	<0.001	0.001	IS 3025 (Part 43): 1992 RA 2019
33	Selenium as Se	mg/l	<0.001	0.01	IS 3025 (Part 56):2003 RA 2019 or IS 15303*
34	Silver as Ag	mg/l	<0.02	0.1	Annex J of IS 13428
35	Sulphide as H ₂ S	mg/l	<0.05	0.05	IS 3025 (Part 29):1986 RA 2019
36	Zinc as Zn	mg/l	<0.05	5	IS 3025 (Part 49):1994 RA 2019
37	Cadmium as Cd	mg/l	<0.001	0.003	IS 3025 (Part 41):1992 RA 2019
38	Cyanide as CN	mg/l	<0.01	0.05	IS 3025 (Part 27):1986 RA 2019
39	Lead as Pb	mg/l	<0.001	0.01	IS 3025 (Part 47):1994 RA 2019
40	Mercury as Hg	mg/l	<0.001	0.001	IS 3025 (Part 48):1994 RA 2019
41	Molybdenum as Mo	mg/l	<0.02	0.07	IS 3025 (Part 2)
42	Nickel as Ni	mg/l	<0.01	0.02	IS 3025 (Part 54): 2003 RA 2019
43	Polynuclear aromatic hydrocarbons as PAH	mg/l	<0.0001	0.0001	APHA 6440
44	Total arsenic as As	mg/l	<0.001	0.01	IS 3025 (Part 37):2022


Reviewed by
(Miss. Laxmi Sahoo)


Authorized Signatory
(Mr. Diganta Krishna Ray)

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WCS/LQR/60

Report No.

NABL ULR No.

Name of the Client

Address

Sampling Location

Sample Description

Sampling Plan & Method

Environmental Condition

Sample Collected by

Date of Testing

TEST REPORT

WCS240712

TC1122524000000115F

National Aluminium Company Limited

Smelter & Power (S&P) Complex

Angul-759145, Odisha

Settling Pond

Surface Water

WCS/QSP/SAMP (WATER)

Temperature 29 °C, Clear Weather

WCS Laboratory

20.07.2024 to 24.07.2024

Issue Date

: 24.07.2024

Date of Sampling

: 18.07.2024

Date of Receiving

: 20.07.2024

Sample ID No

: WCS2407W05

Quantity of Sample

: 1 Ltr

Sample Condition

: Good

Sl. No.	Parameter	Unit	Result	Permissible Limit as per Consent Order No-5059/IND-I-CON-6762 Dt:28.03.2023	Test Methods
1	pH Value	—	7.196	5.5-9.0	IS 3025 (Part-11): 2022
2	Total suspended Solid	mg/l	10	100	IS 3025 (Part-17): 1984 RA 2012
3	Oil & Grease	mg/l	<4	10	APHA 24 th Ed. (5520-B): 2023
4	Biochemical Oxygen Demand as BOD	mg/l	3.2	—	IS 3025 (Part-44): 1993
5	Chemical Oxygen Demand as COD	mg/l	6.4	250	APHA 24 th Ed. (5220-D): 2023
6	Colour	Hazen	20	—	IS 3025 (Part-4): 2021
7	Specific Conductivity	µs/cm	560.5	—	IS 3025 (Part-14): 2013
8	Turbidity	NTU	99.0	—	IS 3025 (Part-10): 1984 RA 2017
9	Dissolve Oxygen as DO	mg/l	6.4	—	IS 3025 (Part-38): 1989
10	Total Hardness as CaCO ₃	mg/l	220	—	APHA 24 th Ed. (2340-C): 2023
11	Chloride as Cl	mg/l	52.48	—	IS 3025 (Part-32): 1988
12	Sulphate as SO ₄	mg/l	73.32	—	IS 3025 (Part-24, Sec-1): 2022
13	Nitrate as NO ₃	mg/l	1.75	—	APHA 24 th Ed. (4500-NO ₃ -B): 2023
14	Calcium as Ca	mg/l	32.06	—	APHA 24 th Ed. (3500-Ca-B): 2023
15	Magnesium as Mg	mg/l	34.02	—	APHA 24 th Ed. (3500-Mg-B): 2023
16	Total Dissolved Solid as TDS	mg/l	317	—	IS 3025 (Part-16): 1984
17	Total Alkalinity as CaCO ₃	mg/l	15	—	IS 3025 (Part-23): 1986 RA 2019
18	Potassium as K	mg/l	25.2	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	43.5	—	IS 3025 (Part-45): 1993 RA 2019

Bijaya Kumar Chahatary
Reviewed by

(Mr. Bijaya Kumar Chahatary)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)



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WCS/LQR/57

TEST REPORT

Report No.	: WCS240719A	Issue Date	: 25.07.2024
NABL ULR No.	: TC11225240000000122F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Gopiballavpur Village (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 18.07.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0724A02A
Environmental Condition	: Light Rain	Date of Receiving	: 20.07.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 22.07.2024 to 24.07.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	50.2	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	31.3	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.2	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	15.8	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	125.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Miss. Laxmi Sahoo)


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(Mr. Diganta Krishna Ray)

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TEST REPORT

Report No.	WCS240719B	Issue Date	: 25.07.2024
NABL ULR No.	TC11225240000000122F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 18.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0724A02B
Environmental Condition	Light Rain	Date of Receiving	: 20.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	22.07.2024 to 24.07.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	61.4	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	40.7	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.8	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.4	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	186.8	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240719C	Issue Date	25.07.2024
NABL ULR No.	TC11225240000000122F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	18.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No.	WCS0724A02C
Environmental Condition	Light Rain	Date of Receiving	20.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	22.07.2024 to 24.07.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	68.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.6	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.4	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	245.2	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240719D	Issue Date	25.07.2024
NABL ULR No.	TC11225240000006122F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Settling Pond (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	18.07.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0724A02D
Environmental Condition	Light Rain	Date of Receiving	20.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	22.07.2024 to 24.07.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	62.8	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.0	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.2	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	150.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240720	Issue Date	25.07.2024
NABL ULR No.	TC1122524000000123F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	Fugitive Emission (Core Zone)		
Sampling Plan & Method	WCS/QSP/SAMP (AIR)		
Environmental Condition	Light Rain	Date of Receiving	20.07.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	4 Nos.
Date of Testing	22.07.2024 to 24.07.2024	Sample Condition	Good

Sl. No.	Sample ID No	Location	Date of Sampling	Suspended Particulate Matter (SPM)	Unit
1	WCS0724A03A	Haul Road	18.07.2024	205	µg/m ³
2	WCS0724A03B	OB Dump	18.07.2024	172	µg/m ³
3	WCS0724A03C	Unloading Point	19.07.2024	316	µg/m ³
4	WCS0724A03D	Blasting Area	19.07.2024	226	µg/m ³
Standard as per CTO No-2938				500	µg/m ³
Test Method				IS-5182 (Part-4) 1999 RA 2019	


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TEST REPORT

Report No.	: WCS240722	Issue Date	: 25.07.2024
NABL ULR No.	: TC11225240000000125F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	: Personal Sampling Analysis (Core Zone)		
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)		
Environmental Condition	: Light Rain	Date of Receiving	: 20.07.2024
Sample Collected	: WCS Laboratory	Quantity of Sample	: 4 No.
Date of Testing	: 22.07.2024 to 24.07.2024	Sample Condition	: Good

Sl. No.	Sample ID No	Location	Date of Sampling	Respirable Particulate Matter (RPM)	Unit	Sample Collected Person
1	WCS0724A03E	Haul Road	18.07.2024	1.15	mg/m ³	Mr. Ramesh Chandra Jena
2	WCS0724A03F	OB Dump	18.07.2024	1.08	mg/m ³	Mr. Ranjit Mondal
3	WCS0724A03G	Loading Point	19.07.2024	1.04	mg/m ³	Mr. Markanda Nayak
4	WCS0724A03H	Blasting Area	19.07.2024	1.11	mg/m ³	Mr. Sonu Panday
Permissible Limit as per DGMS (Tech.) (S&T) Circular No.01 Dhanbad, Dated 21 st January 2010				3.0	mg/m ³	—
Test Method				NIOS-600-15th August, 1994		


Reviewed by
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(Mr. Pradeept Mohapatra)

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**ENVIRONMENTAL MONITORING REPORT
FOR THE MONTH OF AUGUST-2024**



NATIONAL ALUMINIUM COMPANY LIMITED
Coal Mine Division
Angul-759145, Odisha



My World Consultancy Services Private Limited

Plot No. 766, Telengapentha,
Cuttack, Odisha 754001

WCS/LQR/57

TEST REPORT

Report No.	WCS240808A	Issue Date	: 22.08.2024
NABL ULR No.	TC11225240000000132F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Gopiballavpur Village (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 16.08.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0824A02A
Environmental Condition	Light Rain	Date of Receiving	: 19.08.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	19.08.2024 to 21.08.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	51.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	34.1	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.0	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.4	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	136.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240808B	Issue Date	22.08.2024
NABL ULR No.	TC11225240000000132F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)	Date of Sampling	16.08.2024
Sample Description	Ambient Air Quality Monitoring	Sample ID No	WCS0824A02B
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Date of Receiving	19.08.2024
Environmental Condition	Light Rain	Quantity of Sample	1 No.
Sample Collected by	WCS Laboratory	Sample Condition	Good
Date of Testing	19.08.2024 to 21.08.2024		

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	63.7	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	39.3	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.1	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	18.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	198.7	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240808C	Issue Date	: 22.08.2024
NABL ULR No.	TC11225240090000132F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	: 16.08.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0824A02C
Environmental Condition	Light Rain	Date of Receiving	: 19.08.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	19.08.2024 to 21.08.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	71.8	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.6	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.1	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.2	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	240.9	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

Chahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeept Mohapatra
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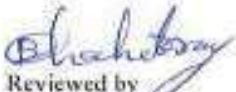


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TEST REPORT

Report No.	: WCS240808D	Issue Date	: 22.08.2024
NABL ULR No.	: TC1122524000000132F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Settling Pond (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 16.08.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0824A02D
Environmental Condition	: Light Rain	Date of Receiving	: 19.08.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 19.08.2024 to 21.08.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	64.3	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.3	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.7	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	18.1	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	148.4	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No. : WCS240809 Issue Date : 22.08.2024
NABL ULR No. : TC11225240000000133F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : August- 2024 Date of Receiving : 19.08.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 20.08.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0824N01	Gopiballavpur Village	16.08.2024	53.0	39.8	Light Rain
WCS0824N02	Near Settling Pond	16.08.2024	62.6	40.4	Light Rain
WCS0824N03	Near Town ship	16.08.2024	54.2	41.8	Light Rain
WCS0824N04	Near Weigh Bridge	16.08.2024	64.1	65.6	Light Rain
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40


Reviewed by
(Mr. Bijaya Kumar Chahataray)


Authorized Signatory
(Mr. Pradeep Mohapatra)



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TEST REPORT

Report No.	: WCS240822A	Issue Date	: 31.08.2024
NABL ULR No.	: TC11225240000000146F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Gopiballavpur Village (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 28.08.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0824A03A
Environmental Condition	: Clear Weather	Date of Receiving	: 30.08.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 30.08.2024 to 31.08.2024	Sample Condition	: Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	54.3	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	38.4	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	16.0	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	144.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahataray)


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(Mr. Pradeep Mohapatra)

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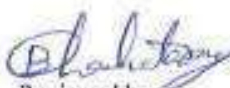


WCS/LQR/57

TEST REPORT

Report No.	WCS240822B	Issue Date	31.08.2024
NABL ULR No.	TC11225240000000146F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)	Date of Sampling	28.08.2024
Sample Description	Ambient Air Quality Monitoring	Sample ID No	WCS0824A03B
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Date of Receiving	30.08.2024
Environmental Condition	Clear Weather	Quantity of Sample	1 No.
Sample Collected by	WCS Laboratory	Sample Condition	Good
Date of Testing	30.08.2024 to 31.08.2024		

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	66.8	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.7	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.5	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	208.2	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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(Mr. Bijaya Kumar Chahataray)


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(Mr. Pradeept Mohapatra)

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TEST REPORT

Report No.	WCS240822C	Issue Date	31.08.2024
NABL ULR No.	TC1122524000000146F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	28.08.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No.	WCS0824A03C
Environmental Condition	Clear Weather	Date of Receiving	30.08.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	30.08.2024 to 31.08.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	72.5	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006-RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	41.4	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.8	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001-RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.7	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006-RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	251.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999-RA 2019

Chahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No.	WCS240822D	Issue Date	31.08.2024
NABL ULR No.	TC11225240000000146F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Settling Pond (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	28.08.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0824A03D
Environmental Condition	Clear Weather	Date of Receiving	30.08.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	30.08.2024 to 31.08.2024	Sample Condition	Good

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	66.1	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	42.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.9	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	18.0	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	160.2	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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TEST REPORT

Report No.	WCS240823	Issue Date	: 31.08.2024
NABL ULR No.	TC11225240000000147F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	Fugitive Emission (Core Zone)		
Sampling Plan & Method	WCS/QSP/SAMP (AIR)		
Environmental Condition	Clear Weather	Date of Receiving	: 30.08.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	: 4 Nos.
Date of Testing	30.08.2024 to 31.08.2024	Sample Condition	: Good

Sl. No.	Sample ID No	Location	Date of Sampling	Suspended Particulate Matter (SPM)	Unit
1	WCS0824A04A	Haul Road	28.08.2024	225.0	µg/m ³
2	WCS0824A04B	OB Dump	28.08.2024	198.0	µg/m ³
3	WCS0824A04C	Unloading Point	28.08.2024	340.0	µg/m ³
4	WCS0824A04D	Blasting Area	28.08.2024	235.0	µg/m ³
Standard as per CTO No-2938				500	µg/m ³
Test Method				IS-5182 (Part-4) 1999 RA 2019	


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WCS/LQR/99

TEST REPORT

Report No.	WCS240826	Issue Date	31.08.2024
NABL ULR No.	TC1122524000000150F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sample Description	Personal Sampling Analysis (Core Zone)		
Sampling Plan & Method	WCS/QSP/SAMP (AIR)		
Environmental Condition	Clear Weather	Date of Receiving	30.08.2024
Sample Collected	WCS Laboratory	Quantity of Sample	4 No.
Date of Testing	30.08.2024 to 31.08.2024	Sample Condition	Good

Sl. No.	Sample ID No	Location	Date of Sampling	Respirable Particulate Matter (RPM)	Unit	Sample Collected Person
1	WCS0824A04E	Haul Road	28.08.2024	1.11	mg/m ³	Mr. S.Srinivas
2	WCS0824A04F	OB Dump	28.08.2024	1.05	mg/m ³	Mr. Ranjit Mandal
3	WCS0824A04G	Loading Point	29.08.2024	1.12	mg/m ³	Mr. Sahadev kumar
4	WCS0824A04H	Blasting Area	29.08.2024	1.09	mg/m ³	Mr. Hurikesh Kabat
Permissible Limit as per DGMS (Tech.) (S&T) Circular No.01 Dhanbad, Dated 21 st January 2010				3.0	mg/m ³	—
Test Method				NIOS-600-15th August, 1994		

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(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)

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WCS/LQR/60
Report No.
NABL ULR No.
Name of the Client
Address

TEST REPORT

WCS240824B
TC11225240000000148F
National Aluminium Company Limited (NALCO)
Smelter & Power (S&P) Complex
Angul-759145, Odisha

Issue Date : 31.08.2024

Sampling Location
Sample Description
Sampling Plan & Method
Environmental Condition
Sample Collected by
Date of Testing

100 KLD (STP OUTLET)
Waste Water
WCS/QSP/SAMP (WATER)
Temperature 29 °C, Clear Weather
WCS Laboratory
27.08.2024 to 30.08.2024

Date of Sampling : 26.08.2024
Date of Receiving : 27.08.2024
Sample ID No : WCS2408W14B
Quantity of Sample : 1Ltr
Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per MoEF & CC, Govt. of India Vide G.S.R. 1265 (E), dated 13.10.2017	Test Methods
1	pH Value	—	7.287	6.5-9.0	IS 3025 (Part-11): 2022
2	Biochemical Oxygen Demand as BOD ₅ , 27°C	mg/l	14.4	30 (Max)	IS 3025 (Part-44): 1993
3	Chemical Oxygen Demand as COD	mg/l	22	—	APHA 24 th Ed. (5220-D): 2023
4	Total Suspended Solid	mg/l	19.1	<100	IS 3025 (Part-17): 2022
5	Oil & Grease	mg/l	<0.5	—	APHA 24 th Ed. (5520-B): 2023
6	Faecal Coliform	MPN/100 ml	1600	<1000	IS 1622 : 1981 RA 2019

Bhahataray
Reviewed by
(Mr. Bijaya Kumar Chahataray)

hl
Authorized Signatory for Microbiological
(Miss. Laxmi Sahoo)

Pradeept Mohapatra
Authorized Signatory for Chemical
(Mr. Pradeept Mohapatra)

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**ENVIRONMENTAL MONITORING REPORT
FOR THE MONTH OF SEPTEMBER-2024**



NATIONAL ALUMINIUM COMPANY LIMITED
Coal Mine Division
Angul-759145, Odisha



My World Consultancy Services Private Limited

Plot No. 766, Telengapentha,
Cuttack, Odisha 754001

WCS/LQR/57

TEST REPORT

Report No.	WCS240905A	Issue Date	10.09.2024
NABL ULR No.	TC11225240000000154F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Gopiballavpur Village (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	03.09.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0924A01A
Environmental Condition	Light Rain	Date of Receiving	06.09.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	06.09.2024 to 09.09.2024	Sample Condition	Good
Instrument I'd	RDST-347D-23	Due date of calibration	04.07.2025
Instrument I'd	FPST-337D-23	Due date of calibration	04.07.2025
Instrument I'd	GSAT-316F-22	Due date of calibration	04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	48.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	32.8	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.6	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	15.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	129.6	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeept Mohapatra
Authorized Signatory
(Mr. Pradeept Mohapatra)

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TEST REPORT

Report No.	WCS240905B	Issue Date	10.09.2024
NABL ULR No.	TC11225240000000154F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	03.09.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0924A01B
Environmental Condition	Light Rain	Date of Receiving	06.09.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Instrument I'd	RDST-348D-23	Due date of calibration	04.07.2025
Instrument I'd	FPST-269F-22	Due date of calibration	04.07.2025
Instrument I'd	GSAT-315F-22	Due date of calibration	04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	54.7	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	38.5	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.1	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.1	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	187.2	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Pradeep Mohapatra

Authorized Signature
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No.	WCS240905C	Issue Date	10.09.2024
NABL ULR No.	TC11225240000000154F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	03.09.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0924A01C
Environmental Condition	Light Rain	Date of Receiving	06.09.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	06.09.2024 to 09.09.2024	Sample Condition	Good
Instrument I'd	RDST-276F-22	Due date of calibration	04.07.2025
Instrument I'd	FPST-270F-22	Due date of calibration	04.07.2025
Instrument I'd	GSAT-407D-23	Due date of calibration	04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	61.4	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	37.9	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	6.0	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	16.4	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	208.6	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahaturay)


Authorized Signatory
(Mr. Pradeept Mohapatra)

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WCS/LQR/57

TEST REPORT

Report No.	: WCS240905D	Issue Date	: 10.09.2024
NABL ULR No.	: TC11225240000000154F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Settling Pond (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 03.09.2024
Sampling Plan & Method	: WCS/QSP:SAMP (AIR)	Sample ID No	: WCS0924A01D
Environmental Condition	: Light Rain	Date of Receiving	: 06.09.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 06.09.2024 to 09.09.2024	Sample Condition	: Good
Instrument I'd	: RDST-277F-22	Due date of calibration	: 04.07.2025
Instrument I'd	: FPST-338D-23	Due date of calibration	: 04.07.2025
Instrument I'd	: GSAT-408D-23	Due date of calibration	: 04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	51.9	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	39.6	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.6	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	164.9	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


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(Mr. Bijaya Kumar Chabataray)


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(Mr. Pradeep Mohapatra)

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WCS/LQR/59

TEST REPORT

Report No. : WCS240906 Issue Date : 10.09.2024
NABL ULR No. : TC1122524000000155F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : September- 2024 Date of Receiving : 06.09.2024
Sample Description : Ambient Noise Quantity of Sample : 04
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 09.09.2024

Sample ID No.	Location	Date of Monitoring	Day Time dB(A) Leq	Night Time dB(A) Leq	Environmental Condition
WCS0924N01	Gopiballavpur Village	03.09.2024	51.4	38.9	Low rain weather
WCS0924N02	Near Settling Pond	03.09.2024	61.8	41.1	Low rain weather
WCS0924N03	Near Town ship	03.09.2024	52.9	40.1	Low rain weather
WCS0924N04	Near Weigh Bridge	03.09.2024	66.1	64.5	Low rain weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per CPCB		
Category of Area	Day Time dB(A) Leq (6.00 Am to 10.00 Pm)	Night Time dB(A) Leq (10.00 Pm to 6.00 Am)
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Sensitive Area	50	40


Reviewed by
(Mr. Bijaya Kumar Chahataray)


Authorized Signatory
(Mr. Pradeept Mohapatra)

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WCS/LQR/59

TEST REPORT

Report No. : WCS240911 Issue Date : 26.09.2024
NABL ULR No. : TC11225240000000160F
Name of the Client : National Aluminium Company Limited
Address : Coal Mine Division
Angul-759145, Odisha
Month of Sampling : September- 2024 Date of Receiving : 21.09.2024
Sample Description : DG Noise Quantity of Sample : 02
Sampling Plan & Method : WCS/QSP/SAMP (NOISE) Sample Condition : Good
Sample Collected by : WCS Laboratory Date of Analysis : 23.09.2024

Sample ID No.	Location	Date of Monitoring	Min.dB(A) Leq	Max.dB(A) Leq	Environmental Condition
WCS0924N05	DG 1 (125 KVA)	20.09.2024	53.4	59.8	Clear Weather
WCS0924N06	DG 2 (125 KVA)	20.09.2024	54.1	61.8	Clear Weather
Test Method		IS 9989: 1981			

Noise Standard in dB(A) Leq as per Environmental (Protection) Second Amendment Rules vide GSR 371(E), dated 17th May 2002 at serial no.94.

Generator Sets run with Diesel Noise Limit: 75 dB(A) at 1 m.

Bhahataray
Reviewed by

(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)

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WCS/LQR/57

TEST REPORT

Report No.	: WCS240912A	Issue Date	: 26.09.2024
NABL ULR No.	: TC1122524000000161F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Gopiballavpur Village (Buffer Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 18.09.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0924A03A
Environmental Condition	: Light Rain	Date of Receiving	: 21.09.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 23.09.2024 to 25.09.2024	Sample Condition	: Good
Instrument I'd	: RDST-347D-23	Due date of calibration	: 04.07.2025
Instrument I'd	: FPST-337D-23	Due date of calibration	: 04.07.2025
Instrument I'd	: GSAT-316F-22	Due date of calibration	: 04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	46.2	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	31.6	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.8	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2004 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	15.9	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	118.7	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
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(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No.	WCS240912B	Issue Date	26.09.2024
NABL ULR No.	TC11225240000000161E		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Colony Area (Buffer Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	18.09.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0924A03B
Environmental Condition	Light Rain	Date of Receiving	21.09.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	23.09.2024 to 25.09.2024	Sample Condition	Good
Instrument I'd	RDST-348D-23	Due date of calibration	04.07.2025
Instrument I'd	FPST-269F-22	Due date of calibration	04.07.2025
Instrument I'd	GSAT-315F-22	Due date of calibration	04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	49.9	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	34.5	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.4	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.7	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	158.5	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Reviewed by
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Shubaneswar
Authorized Signatory
(Mr. Pradeep Mohanra)

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TEST REPORT

Report No.	WCS240912C	Issue Date	26.09.2024
NABL ULR No.	TC11225240000000161F		
Name of the Client	National Aluminium Company Limited		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	Near Weigh Bridge (Core Zone)		
Sample Description	Ambient Air Quality Monitoring	Date of Sampling	18.09.2024
Sampling Plan & Method	WCS/QSP/SAMP (AIR)	Sample ID No	WCS0924A03C
Environmental Condition	Light Rain	Date of Receiving	21.09.2024
Sample Collected by	WCS Laboratory	Quantity of Sample	1 No.
Date of Testing	23.09.2024 to 25.09.2024	Sample Condition	Good
Instrument I'd	RDST-276F-22	Due date of calibration	04.07.2025
Instrument I'd	FPST-270F-22	Due date of calibration	04.07.2025
Instrument I'd	GSAT-407D-23	Due date of calibration	04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	57.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	36.5	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.7	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO _x)	µg/m ³	16.1	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	203.6	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019

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Reviewed by
(Mr. Bijaya Kumar Chahataray)

Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeep Mohapatra)

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TEST REPORT

Report No.	: WCS240912D	Issue Date	: 26.09.2024
NABL ULR No.	: TC11225240000000161F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	: Near Settling Pond (Core Zone)		
Sample Description	: Ambient Air Quality Monitoring	Date of Sampling	: 18.09.2024
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)	Sample ID No	: WCS0924A03D
Environmental Condition	: Light Rain	Date of Receiving	: 21.09.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 1 No.
Date of Testing	: 23.09.2024 to 25.09.2024	Sample Condition	: Good
Instrument I'd	: RDST-277F-22	Due date of calibration	: 04.07.2025
Instrument I'd	: FPST-338D-23	Due date of calibration	: 04.07.2025
Instrument I'd	: GSAT-408D-23	Due date of calibration	: 04.07.2025

Parameter	Unit	Result	Standard	Test Method
Respirable Suspended Particulate Matter (PM ₁₀)	µg/m ³	47.6	100 (As per NAAQ 2009)	IS-5182 (Part-23) 2006 RA 2017
Fine Particulate Matter (PM _{2.5})	µg/m ³	38.0	60 (As per NAAQ 2009)	IS-5182 (Part-24) 2019
Sulphur Dioxide (SO ₂)	µg/m ³	5.1	80 (As per NAAQ 2009)	IS-5182 (Part-2) 2001 RA 2017
Nitrogen Oxides (NO ₂)	µg/m ³	17.4	80 (As per NAAQ 2009)	IS-5182 (Part-6) 2006 RA 2017
Suspended Particulate Matter (SPM)	µg/m ³	147.3	500 (As per CTO No-2938)	IS-5182 (Part-4) 1999 RA 2019


Reviewed by
(Mr. Bijaya Kumar Chahatary)


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(Mr. Pradeept Mohapatra)

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TEST REPORT

Report No.	: WCS240913	Issue Date	: 26.09.2024
NABL ULR No.	: TC11225240000000162F		
Name of the Client	: National Aluminium Company Limited		
Address	: Smelter & Power (S&P) Complex Angul-759143, Odisha		
Sample Description	: Fugitive Emission (Core Zone)		
Sampling Plan & Method	: WCS/QSP/SAMP (AIR)		
Environmental Condition	: Clear Weather	Date of Receiving	: 21.09.2024
Sample Collected by	: WCS Laboratory	Quantity of Sample	: 4 Nos.
Date of Testing	: 23.09.2024 to 25.09.2024	Sample Condition	: Good
Instrument I'd	: HVST-143F-22	Due date of calibration	: 04.07.2025
Instrument I'd	: HVST-142F-22	Due date of calibration	: 04.07.2025

SL No.	Sample ID No	Location	Date of Sampling	Suspended Particulate Matter (SPM)	Unit
1	WCS0924A04A	Haul Road	18.09.2024	199.0	µg/m ³
2	WCS0924A04B	OB Dump	18.09.2024	176.0	µg/m ³
3	WCS0924A04C	Unloading Point	19.09.2024	315.0	µg/m ³
4	WCS0924A04D	Blasting Area	19.09.2024	187.0	µg/m ³
Standard as per CTO No-2938				500.0	µg/m ³
Test Method				IS-5182 (Part-1) 1999 RA 2019	


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TEST REPORT

Report No. : WCS240917 Issue Date : 26.09.2024
NABL ULR No. : TC11225240000000166F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sample Description : Personal Sampling Analysis (Core Zone)
Sampling Plan & Method : WCS/QSP/SAMP (AIR)
Environmental Condition : Clear Weather Date of Receiving : 21.09.2024
Sample Collected : WCS Laboratory Quantity of Sample : 4 No.
Date of Testing : 23.09.2024 to 25.09.2024 Sample Condition : Good

Sl. No.	Sample ID No	Location	Date of Sampling	Respirable Particulate Matter (RPM)	Unit	Sample Collected Person
1	WCS0924A04E	Haul Road	18.09.2024	1.10	mg/m ³	Mr. L. Applanaidu
2	WCS0924A04F	OB Dump	18.09.2024	1.13	mg/m ³	Mr. Sudhanshu Sekhar Sahoo
3	WCS0924A04G	Loading Point	19.09.2024	1.14	mg/m ³	Mr. Sahadev Kumar
4	WCS0924A04H	Blasting Area	19.09.2024	1.07	mg/m ³	Mr. Krupa Sindu Biswal
Permissible Limit as per DGMS (Tech.) (S&T) Circular No.01 Dhanbad, Dated 21 st January 2010				3.0	mg/m ³	-
Test Method				NIOS-600-15th August, 1994		


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TEST REPORT

Report No. : WCS240914 Issue Date : 28.09.2024
NABL ULR No. : TC11225240000000163F
Name of the Client : National Aluminium Company Limited
Address : Smelter & Power (S&P) Complex
Angul-759145, Odisha
Sampling Location : Settling Pond
Sample Description : Surface Water Date of Sampling : 20.09.2024
Sampling Plan & Method : WCS/QSP/SAMP (WATER) Date of Receiving : 21.09.2024
Environmental Condition : Temperature 29 °C, Clear Weather Sample ID No : WCS0924W03
Sample Collected by : WCS Laboratory Quantity of Sample : 1 Ltr
Date of Testing : 23.09.2024 to 27.09.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Permissible Limit as per Consent Order No-5059/IND-I-CON-6762 Dt:18.03.2023	Test Methods
1	pH Value	--	6.81 at 27.2 °C	5.5-9.0	IS 3025 (Part-11): 2022
2	Total suspended Solid	mg/l	15.4	100	IS 3025(Part-17)1984-RA-2012
3	Oil & Grease	mg/l	<4	10	APHA 24 th Ed. (5520-B): 2023
4	Biochemical Oxygen Demand as BOD	mg/l	2.5	--	IS 3025 (Part-44): 1993
5	Chemical Oxygen Demand as COD	mg/l	4	250	APHA 24 th Ed. (5220-D): 2023
6	Colour	Hazen	15	--	IS 3025 (Part-4): 2021
7	Specific Conductivity	µs/cm	568.1	--	IS 3025 (Part-14): 2013
8	Turbidity	NTU	23	--	IS 3025 (Part-10): 1984 RA 2017
9	Dissolve Oxygen as DO	mg/l	5.9	--	IS 3025 (Part-38): 1989
10	Total Hardness as CaCO ₃	mg/l	180	--	APHA 24 th Ed. (2340-C): 2023
11	Chloride as Cl	mg/l	15	--	IS 3025 (Part-32): 1988
12	Sulphate as SO ₄	mg/l	48.97	--	IS 3025 (Part-24; Sec-1): 2022
13	Nitrate as NO ₃	mg/l	4.26	--	APHA 24 th Ed. (4500-NO ₃ -B): 2023
14	Calcium as Ca	mg/l	40.08	--	APHA 24 th Ed. (3500-Ca-B): 2023
15	Magnesium as Mg	mg/l	19.44	--	APHA 24 th Ed. (3500-Mg-B): 2023
16	Total Dissolved Solid as TDS	mg/l	394	--	IS 3025 (Part-16): 1984
17	Total Alkalinity as CaCO ₃	mg/l	100	--	IS 3025 (Part-23): 1986 RA 2019
18	Potassium as K	mg/l	24.8	--	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	40	--	IS 3025 (Part-45): 1993 RA 2019

Bhahataray
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Pradeep Mohapatra
Authorized Signatory
(Mr. Pradeept Mohapatra)



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WCS/LQR/60
Report No.
NABL ULR No.
Name of the Client
Address

TEST REPORT

WCS240915 Issue Date : 28.09.2024
TC11225240000000164F
National Aluminium Company Limited
Smelter & Power (S&P) Complex
Angul-759145, Odisha
38 Hector Colony Borewell I Near Canteen
Ground Water Date of Sampling : 20.09.2024
WCS/QSP/SAMP (WATER) Date of Receiving : 21.09.2024
Temperature 29 °C, Clear Weather Sample ID No : WCS0924W04
WCS Laboratory Quantity of Sample : 1 Ltr
23.09.2024 to 27.09.2024 Sample Condition : Good

Sl. No.	Parameter	Unit	Result	Requirement as per IS 10500:2012 Reaffirmed 2018	Test Methods
1	Colour	Hazen	2.0	Max. 5	IS 3025 (Part-4): 2021
2	Odour	—	Agreeable	Agreeable	IS 3025 (Part-5): 2018
3	pH Value	—	6.375 at 26.4 °C	6.5-8.5	IS 3025 (Part-11): 2022
4	Taste Threshold	—	Agreeable	Agreeable	IS 3025 (Part-7): 2017
5	Turbidity	NTU	0.1	1	IS 3025 (Part-10): 1984 RA 2017
6	Total Dissolved Solid as TDS	mg/l	128.0	500	IS 3025 (Part-16): 1984 RA 2017
7	Ammonia as Total ammonia-N	mg/l	0.157	0.5	IS 3025 (Part-34): 1988 RA 2019
8	Chloride as Cl	mg/l	47.99	250	IS 3025 (Part-32): 1988 RA 2019
9	Fluoride as F	mg/l	< 0.02	1.0	APHA 24 th Ed. (4500-F-13): 2023
10	Iron as Fe	mg/l	0.15	1.0	IS 3025 (Part-53): 2003 RA 2019
11	Total Hardness as CaCO ₃	mg/l	148.0	200	IS 3025 (Part-21): 2009 RA 2019
12	Calcium as Ca	mg/l	30.46	75	IS 3025 (Part-40): 1991 RA 2019
13	Magnesium as Mg	mg/l	17.5	30	APHA 24 th Ed. (3500-Mg-8): 2023
14	Nitrate as NO ₃	mg/l	15.59	45	APHA 24 th Ed. (4500-NO ₃ -3): 2023
15	Sulphate as SO ₄	mg/l	7.31	200	IS 3025 (Part-24 Sec 1): 2022
16	Total Alkalinity as CaCO ₃	mg/l	100.0	200	IS 3025 (Part-25): 1986 RA 2019
17	Total Chromium as Cr	mg/l	< 0.02	0.05	IS 3025 (Part-52): 2003 RA 2019
18	Potassium as K	mg/l	4.0	—	IS 3025 (Part-45): 1993 RA 2019
19	Sodium as Na	mg/l	6.5	—	IS 3025 (Part-45): 1993 RA 2019
20	Total Suspended Solid as TSS	mg/l	23.6	—	IS 3025 (Part-17): 2022
21	E. Coli	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
22	Faecal Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019
23	Total Coliform	MPN/100 ml	< 2	Shall not be detectable in any 100 ml sample	IS 1622 : 1981 RA 2019

Chahaturay
Reviewed by

(Mr. Bijaya Kumar Chahaturay)

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Pradeep Mohapatra
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TEST REPORT

Report No.	WCS240916	Issue Date	28.09.2024
NABL ULR No.	TC1122524000000165F		
Name of the Client	National Aluminium Company Limited (NALCO)		
Address	Smelter & Power (S&P) Complex Angul-759145, Odisha		
Sampling Location	100 KLD (STP OUTLET)		
Sample Description	Waste Water	Date of Sampling	20.09.2024
Sampling Plan & Method	WCS/QSP/SAMP (WATER)	Date of Receiving	21.09.2024
Environmental Condition	Temperature 29 °C, Clear Weather	Sample ID No	WCS2409W05
Sample Collected by	WCS Laboratory	Quantity of Sample	1Ltr
Date of Testing	23.09.2024 to 27.09.2024	Sample Condition	Good

Sl. No.	Parameter	Unit	Result	Requirement as per MoEF & CC, Govt. of India Vide G.S.R. 1265 (E), dated 13.10.2017	Test Methods
1	pH Value	--	7.739 at 27.6 °C	6.5-9.0	IS 3025 (Part-11): 2022
2	Biochemical Oxygen Demand as BOD ₅ , 27°C	mg/l	13.3	30 (Max)	IS 3025 (Part-44): 1993
3	Chemical Oxygen Demand as COD	mg/l	20.0	--	APHA 24 th Ed. (5220-D): 2023
4	Total Suspended Solid	mg/l	32.9	<100	IS 3025 (Part-17): 2022
5	Oil & Grease	mg/l	<0.5	--	APHA 24 th Ed. (5520-B): 2023
6	Faecal Coliform	MPN/100 ml	1600.0	<1000	IS 1622 : 1981 RA 2019

Bhahataray
Reviewed by

(Mr. Bijaya Kumar Chahataray)

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Authorized Signatory for Microbiological

(Miss. Laxmi Sahoo)

Pradeep
Authorized Signatory for Chemical

(Mr. Pradeep Mohapatra)

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PHOTOGRAPH OF UTKAL-D COAL MINES

Garland Drain



OB Dump



High Pressure Rain Gun



Wind Scree around Coal Stock Yard (10 M height & 500 M lang)



Water Sprinkling



Mist Cannon



Surface Miner with Water Sprinkling Facility



Wet Drilling Machine



Full Body Truck Washing & Wheel Washing Station



Nallah Diversion



Nallah Embankment



Transportation



Plantation

