

**Half Yearly Report of Compliance on Environmental Clearance condition
for Smelter Plant, NALCO, Angul for the period October 2023 to March 2024.
Ref: EC No. J-11011/20/2004-IA.II(I), dated. 22.06.2004**

Sl. No.	Condition Type	Condition Details	Self Compliance
1.	Air quality monitoring and preservation	A. (i) The gaseous emissions from various process units should conform to the standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry, its size and location. At no time the emission level should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency. Ambient air quality monitoring stations should be set up in consultation with the Odisha Pollution Control Board. Data should be regularly monitored and records maintained and report submitted to the Ministry/CPCB/SPCB once in six months.	<p>(a) Norm has been prescribed for emission of particulate matter and Fluoride from Pot room and Bake Oven. All the norms for different pollutants are being achieved and appropriate steps are being taken for maintaining these emission levels. For the period October 2023 to March 2024 the report of emission of particulate matter is given at Annexure- III and emission of Fluoride is given at Annexure-IV.</p> <p>(b) 7 Nos. of ambient air quality monitoring stations (3 Nos. of stations of CPP which are within 3 Km of Smelter + 4 Nos. of stations of Smelter Plant) exist. The location of the monitoring stations have been finalized jointly with Odisha State Pollution Control Board.</p> <p>(c) Four online ambient air quality monitoring station around Smelter Plant have been commissioned & operational. The data from the monitoring stations are uploaded in the OSPCB and CPCB servers continuously. The Ambient Air Quality Monitoring Report (Online data) for the period October 2023 to March 2024 is given at Annexure-IX.</p>
2.	Water quality monitoring and preservation	A.(ii) There should be no discharge of process effluent. As reflected in the EIA/ EMP report, the proposed Smelter Plant shall be designed for zero discharge. In addition, effort should be made to re-use waste water from the existing plant. Waste water from the domestic effluent after treatment in Sewage Treatment Plant should conform to the prescribed standards. The treated effluent should be used for green belt development.	Smelter plant does not have any process effluent. However, surface water is generated due to blowdown, leakage, floor washings etc. and collected in Holding pools and further treated through Ion Exchange Defluoridation Plant and Emrion Nano Defluoridation Plant. Zero discharge during non-monsoon has been achieved since 15.12.2009. Treated water from Plant STP is collected in holding pool and subsequently treated in ETPs.

			Treated effluent is being used for green belt development, cooling tower make up, fire fighting, vehicle washing, civil construction etc.
3.	Air quality monitoring and preservation	A. (iii) In plant control measures for checking fugitive emissions from spillage/raw material handling should be provided. Fluoride emissions should be monitored from the existing pot room, proposed pot room and in the forage around the Smelter complex and the data submitted regularly to the Ministry/ RO Bhubaneswar and SPCB. Further, dry scrubbing system to control the emissions from the pot lines should be provided. The fluoride emissions shall not exceed 0.8Kg/t of aluminum produced. Further, the emissions through the Fume Treatment Plant Should not exceed 0.30Kg/t of aluminium produced. Fugitive fluoride emission from the pot rooms should be monitored and report submitted regularly to Ministry /RO, Bhubaneswar and SPCB. The particulate emissions from the Bake Oven Plant Should not exceed 50mg/Nm ³ .	<p>Steps are being taken to minimize fugitive emission from various sources. De-dusting systems have been installed at each material transfer points. Monitoring of Fugitive emission from Pot rooms of existing plant and forage monitoring around Smelter Plant are being carried out regularly. Monthly report of the same has been submitted to OSPCB. The total fluoride emission, FTP stack emission, Bake Oven stack emission and fugitive fluoride emission from Pot Rooms reports for the period October 2023 to March 2024 are given in Annexure – IV.</p> <p>Level of fluoride is being monitored in grass samples in 6 nos. of surrounding villages i.e. Bonda, Tulsipal, Lenguliabeda, Banarpal, Turang & Balramprasad, covering all directions every month and found OK. During October 2023 to March 2024, the average level of fluoride in grass samples in those villages are given in Annexure-V.</p>
4.	Air quality monitoring and preservation	A.(iv) The Poly-aromatic Hydrocarbons from the carbon plant (anode bake oven) should not exceed 2mg/Nm ³ . The data on PAH should be monitored quarterly and report submitted to the Ministry/ RO, Bhubaneswar and SPCB.	Complied. During October 2023 to March 2024 PAH emission from Bake Oven stack-1& 2 have been monitored and report is given at Annexure-VIII .
5.	Waste management	A.(v) The spent pot lining generated from the Smelter should be properly treated by setting up of spent pot lining treatment plant to remove fluoride and cyanide and disposed off in a secured landfill site. The location of a land fill site should be approved by the Odisha State Pollution Control Board. The ground water quality around the land fill site should be monitored and data submitted to the Ministry/SPCB	The spent pot-lining material generated during de-lining of pots is stored in concrete sheds after segregation of carbon portion from refractory portion separately. The carbon portion of SPL is disposed to M/s Green Energy Resources Ltd., Sambalpur and M/s Regrow Tanso Pvt. Ltd., Jharsuguda (Agencies authorized by CPCB & OSPCB) for detoxification and energy recovery. Nalco has also constructed a double layer secured engineered landfill for storage of SPL as per direction of OSPCB which was full during operation from 2011 to 2017. The surrounding site upto a radius of 5 KM

			is regularly monitored for any contamination by engaging a third party empaneled in the list of OSPCB. Copy of the ground water analysis report is attached at the Annexure-XI .
6.	Greenbelt	A. (vi) A green belt of adequate width and density should be developed within and around the plant premises as per the CPCB guidelines	Plantation during October 2023 to March 2024 is 3010 nos. Cumulative 17, 69,795 nos. (Seventeen lakh sixty nine thousand seven hundred ninety five) of trees have been planted till date with survival rate of 69.1%. In Smelter and Township, as prescribed, plantation density of 1000 trees per acre is being maintained.
7.	Human health environment	A. (vii) Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act	During October 2023 to March 2024 , Total 2313 workers (regular employees: 1024 & contractual workers: 1289) were undergone Periodical Medical Examination (PME).
8.	Water quality monitoring and preservation	A.(viii) Company should undertake rain water-harvesting measures to recharge the ground water and action plan in this regard should be submitted to the Ministry.	NALCO does recognize the importance of rain water harvesting and water conservation in national perspective. There are three numbers of holding pools of total capacity 1,89,000 Cum, which store surface runoffs and subsequently the stored water is treated in Defluoridation plants & are used as makeup water in cooling tower & horticulture. However, ground water recharging within the smelter plant area is not technically feasible due to design restriction in operation of pots.
9.	Statutory compliance	A.(ix) M/s NALCO should comply with the conditions stipulated by the Forest and Environment Department, Govt. of Odisha vide their letter No. 7695 /F&E dated 28th May 2004 regarding preparation of Regional Environmental Management Plan for Angul –Talcher area by earmarking separate funds and progress made in this regard should be intimated to this Ministry.	Complied. Progress report is enclosed at Annexure-II .
10.	Corporate environmental responsibility	A. (x) All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium Sector should be strictly implemented.	The status of compliance of CREP requirements is given at Annexure-I .
11.	Statutory compliance	B. (i) The project authorities must strictly adhere to the stipulations made by the Odisha Pollution Control Board and the state Government.	All the conditions of SPCB & State Govt. are being complied.

12.	Statutory compliance	B. (ii) No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment And Forests.	Noted
13.	Air quality monitoring and preservation	B. (iii) Adequate ambient air quality – monitoring stations should be established in the downward direction as well as where maximum ground level concentration of SPM, SO ₂ , NO _x are anticipated in consultation with the State Pollution Control Board. Data on ambient air quality, fugitive emission and stack emissions should be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the State Pollution Control Board/Central Pollution Control Board once in six months.	<p>7 nos. of ambient air quality monitoring stations (3 nos. of stations of CPP which are within 3 Km of Smelter + 4 nos. of stations of Smelter Plant) exist. The location of the monitoring stations have been finalized in joint consultation with Odisha State Pollution Control Board and all the mentioned factors have been taken into consideration while locating the stations.</p> <p>The results of stack emission for the period October 2023 to March 2024 are within norm (Refer Annexure III & IV). Air Quality Monitoring Report (Online data) for the period October 2023 to March 2024 is given at Annexure-IX.</p> <p>The data from online monitoring stations are sent to OSPCB and CPCB servers continuously.</p>
14.	Water quality monitoring and preservation	B. (iv) Industrial waste water should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) Dated 19 May 1993 and 31st December, 1993 or as amended from time to time. The treated waste water should be utilized for plantation purpose.	<p>The industrial waste (surface) water is properly collected & treated so as to meet the prescribed norms. The waste water analysis reports (Outlet of Plant STP and Outlet of Defluoridation Plant) during the period October 2023 to March 2024 are given at Annexure-VI.</p> <p>A recycling sump of 2 x 480 m³ capacity for recycling of the treated surface water has already been constructed. Recycled water is being used for horticulture, anode cooling and vehicle washing purpose.</p> <p>Smelter Plant has installed Emrion NANO technology based ETP system for treatment of surface water of holding pools which is being used currently to cater the cooling water requirement of Smelter. Installation & Commissioning was completed on 28.02.2017 and the Plant is running since 25.03.2017.</p>
15.	Noise monitoring & prevention	B. (v) The overall noise level in and around the plant area should be kept well within the standards (85 dBA) by	The ambient noise level is measured at four locations around Smelter Plant i.e. (i)CISF Barrack, Smelter Plant,

		providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level should conform to the standards prescribed under EPA Rules, 1989, viz. 75 dBA (daytime) and 70 dBA (nighttime).	(ii)Pump House, S&P Township, (iii)CISF Barrack, CPP and (iv)Rolling Plant. The noise level is within the permissible norms. During October 2023 to March 2024 average noise levels are given in Annexure-VII .
16.	Waste management	B. (vi) M/s NALCO should comply with the Hazardous Waste (Management & Handling)Rule, 2003 and Hazardous Chemical Rules/Manufacture Storage and Import of Hazardous Chemicals Rules,2000 and amendments there under.	NALCO Smelter has received authorization for management and handling of hazardous & other wastes which is valid upto 31st March 2024 and is complying all the conditions therein. The requirements of Hazardous Chemical Rules/Manufacture Storage and Import of Hazardous Chemicals Rules' 2000 and amendments are complied.
17.	Corporate environmental responsibility	B. (vii) The project proponent shall also comply with all the environmental protection measures and safe guards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc	The recommendations of EIA/EMP report are being implemented. A substantial amount is being spent for peripheral development activities in surrounding villages in provision of roads, tube wells, school buildings, health care, distribution of seedlings, relief work, drinking & piped water supply, community buildings, animal health camps, community plantation, sanitation & cleaning of villages etc. including other CSR Activities. Besides, Financial assistance is provided to Dist. Admn. for Independence day celebration, promotion of art and culture, District Mahotsav, Best Matriculate awards, Financial Assistance for block level science exhibition, Red Cross Blood Bank, Physically Challenged camps, Relief measures for fire victims/calamities etc. Total expenditure towards peripheral development around S&P Complex is Rs 105.23 lakh during October 2023 to March 2024 . Details are given in Annexure-X .
18.	Statutory compliance	B.(viii) The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds	Complied.

		so provided should not be diverted for any other purposes.	
19.	Statutory compliance	B. (ix) The Regional Office of the Ministry of Bhubaneswar/Central Pollution Control Board /State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly.	Monitoring data is being sent to OSPCB every month. The monitoring data along with status of compliance of conditions of environmental clearance is being sent to Regional Office, MoEF every six months.
20.	Statutory compliance	B. (x) The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board /Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in . This should be advertised within seven days from the date of issue of the clearance letter, at least in two local news papers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional Office	Complied.
21.	Statutory compliance	B. (xi) The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Complied.

COMPLIANCE STATUS OF CREP				
Sl. No.	Issues	Action Points	Targets	Status
1	Technology	Allowing new Potlines only with Pre-baked Technology	Environmental clearance for new potlines to be given by MoEF, after June 2003, only with pre-baked technology.	Not applicable
2	Fluoride Emissions	Prescribing maximum size of the plant	Maximum size of the plant shall be decided based on the assimilative capacity of each plant location	Not applicable
		Revision of fluoride emission standards	For Soderberg Technology 2.8 kg/T by December 2005 [1.0 kg/T (VSS) & 1.30 kg/t (HSS) by December 2010]*	Not applicable
			For Pre-baked Technology 0.8 kg/T	Complied (Fluoride Emission Reports are given in Annexure-IV)
		Phasing out Wet Scrubbing System for fluoride	By December 2006	Not applicable
		Allowing new Potlines only with Dry Scrubbing System	Environmental clearance for new Potlines shall be given by MoEF, after June 2003, only with Dry Scrubbing System	--
		Monitoring of fugitive emissions from pot rooms	To start with Indal or any other better method & submit data from January 2004, regularly to SPCBs & CPCB	Data is being submitted to MoEF and OSPCB from October 2004.
3	Fluoride Consumption	Fluoride consumption per tonne of aluminium Produced (as F)	[For Soderberg Technology 15 kg/T by December 2005	Not applicable
			For Pre-baked Technology 10 kg/T by December 2005]*	For October 2023 to March 2024 , Specific Consumption as F is 15.064 kg/T. (Technically not feasible to achieve 10 kg/T standard with the present AP-18 Technology and available raw materials used.)

COMPLIANCE STATUS OF CREP				
Sl. No.	Issues	Action Points	Targets	Status
4	Ambient Fluoride	Forage fluoride standards Measurement of forage fluoride	<ul style="list-style-type: none"> • Twelve consecutive months average - 40 ppm • Two consecutive months Average - 60 ppm • One month - 80 ppm <p>To start monitoring and submit data from January 2004, regularly to SPCBs & CPCB. The locations of monitoring may be selected in collaboration with SPCBs & CPCB</p>	The monitoring of forage fluoride is being done for grass samples in surrounding villages and the results are within norms. Forage fluoride monitoring reports are given in Annexure-V.
5	Spent Pot Lining (SPL)	Setting up a centralized SPL treatment & disposal facility with aluminium fluoride recovery and utilization of SPL in steel / cement industries	[Proposal to be prepared]	Not applicable to Smelter.
		Limit for pot life (for new pots installed after December 31, 2003)	[2500 days (average)]	Average failed pot life of NALCO smelter during October 2023 to March 2024 is 3865.82 days.
		SPL (Carbon & Refractory) to be disposed in Secured Landfill.	With immediate effect	Complied
6	Red Mud	Phasing out Wet disposal Red Mud Utilisation	To achieve minimum 50% solids in red mud by Dec 2005 A proposal for practical utilisation to be prepared by Aluminium Association of India within six months	Not applicable
7	Anode Baking Oven	Achieving particulate matter limit of 50 mg/Nm ³	By Dec. 2005	Complied.

ACTION PLAN FOR ENVIRONMENT MANAGEMENT OF ANGUL- TALCHER-MERAMUNDULI AREA**(AS SUGGESTED BY REMP STUDY PREPARED BY INDIAN SCHOOL OF MINES)**

Sl. No.	Suggested action plan	Implementing agency	Status
01	Increase in process efficiency and improvement in the performance of control devices for Fluoride emission (gaseous and particulate) control	NALCO smelter	Advanced fume treatment plants utilizing the latest dry scrubbing technology having more than 99.7% efficiency with online monitoring system have been installed in Potlines to control fluoride emission. There are eight such fume treatment plants in Potlines. Besides there are two such plants in Bake Oven-1 and 2 respectively.
02	Zero discharge of effluent by smelter unit of NALCO	NALCO smelter	NALCO smelter has established zero discharge system during non monsoon period since December 2009.
03	Adequate treatment of township effluent before it is used on land	NALCO Smelter	An STP of 5 MLD capacity is in operation to treat the sewage generated in the township.
04	Provision of community level Defluoridation Plant in the Fluoride affected villages.	NALCO smelter in association with District Administration	NALCO is supplying treated drinking water to 25 villages around smelter.
05	Upgradation of dust collection systems	All industrial units	Bag filters of capacity 82000 m³/hr, 62000 m³/hr and 12,000 m³/hr have been installed at anode butt crushing System of Rodding Shop- 1. New bag filters at GAP down stream are being installed.
07	Development of adequate green belts around industries.	Industries	Plantation during October 2023 to March 2024 is 3010 nos. Cumulative 17, 69,795 nos. (Seventeen lakh sixty nine thousand seven hundred ninety five) of trees have been planted till date with survival rate of 69.1%. In Smelter and Township, as prescribed, plantation density of 1000 trees per acre is being maintained.
08	Effective equipments maintenance should be done on regular basis to improve noise situation	All industrial units	Complied.
09	Develop thickly vegetated premises in industries and important road crossings	All industrial units and local administration	Plantation during October 2023 to March 2024 is 3010 nos. Cumulative 17, 69,795 nos. (Seventeen lakh sixty nine thousand seven hundred ninety five) of trees have been planted till date with survival rate of 69.1%. In Smelter and Township, as prescribed, plantation density of 1000 trees per acre is being maintained.
10	Containment of fugitive emission	All industrial units	NALCO has adopted complete hooding of pots along with maintaining negative pressure inside it as a part of controlling measures to fugitive emission. Besides, all materials transfer points are completely enclosed and are connected to dedusting systems to prevent fugitive emission.

ANNEXURE-III

Particulate Matter Emission From Bake Oven Stack (All units are in mg/Nm³)								
LOCATION	Norm	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Average
Bake Oven-I	50mg/NM ³	43.29	27.265	36.89	33.22	23.71	24.595	31.495
Bake Oven-II	50mg/NM ³	38.83	34.235	31.885	32.505	46.76	27.735	35.325
Particulate Matter Emission From Potline FTP Stacks (All units are in mg/Nm³)								
LOCATION	Norm	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Average
FTP-1	100mg/NM ³	28.55	24.265	24.415	30.4	27.435	28.1	27.194
FTP-2	100mg/NM ³	23.515	22.93	19.76	29.12	30.565	19.63	24.253
FTP-3	100mg/NM ³	29.665	28.925	25.575	26.95	24.575	31.935	27.938
FTP-4	100mg/NM ³	21.065	20.225	27.195	40.48	55.03	26.91	31.818
FTP-5	100mg/NM ³	36.58	27.08	27.67	31.96	34.815	36.155	32.377
FTP-6	100mg/NM ³	28.62	22.04	28.85	40.26	45.515	40.35	34.273
FTP-7	100mg/NM ³	35.405	28.72	31.195	34.875	31.345	40.19	33.622
FTP-8	100mg/NM ³	37.72	28.48	37.51	34.245	30.495	34.39	33.807

ANNEXURE- IV

FLUORIDE EMISSION FROM STACKS (All units are in Kg/T of Aluminium Produce)								
LOCATION	Norm	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Average
A) POTLINE								
Fluoride Emission from FTP 1 to 8 Stacks	0.3 kg/T of Al	0.169	0.174	0.121	0.116	0.102	0.136	0.136
Fugitive Emission of Fluoride from each Potroom.	0.4Kg/T of Al	0.138	0.148	0.201	0.284	0.371	0.304	0.241
B) BAKE OVEN								
Fluoride emission from FTC Stacks 1 & II of Bake Ovens	0.1 Kg/T of Al	0.014	0.018	0.007	0.007	0.006	0.008	0.01
C) Total Fluoride Emission.	0.8 Kg/T of Al	0.321	0.34	0.329	0.407	0.479	0.448	0.387

ANNEXURE-V

FORAGE FLUORIDE MONITORING (GRASS SAMPLES) REPORTS							
(All values are in ppm)							
Norm: Single month-80 ppm, Average of 2 consecutive months: 60 ppm, Average Annual: 40 ppm							
Sl. No.	Location / villages	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
1.	Bonda	38.00	38.10	38.10	38.70	39.00	39.50
2.	Tulsipal	38.20	39.50	39.20	36.90	38.50	39.20
3.	Languliabeda	39.00	39.50	37.80	37.60	39.20	38.50
4.	Banarpal	39.60	38.30	39.30	38.50	39.70	38.20
5.	Turang	37.75	36.75	36.70	38.40	38.60	38.90
6.	Balramprasad	36.20	37.50	38.50	39.00	39.40	39.80

ANNEXURE-VI

WASTE WATER ANALYSIS REPORT (PLANT STP OUTLET)									
Parameters	Unit	Norm	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Average
pH		6.5 to 9.0	7.10	7.40	6.70	7.00	6.70	6.70	6.93
TSS	mg/l	<100	3.00	3.00	4.00	2.00	3.00	2.00	2.83
BOD 3days at 27 deg.C	mg/l	<30	3.00	1.00	4.00	3.00	6.00	6.00	3.83
Fecal Coliform	MPN/100ml	<100	89.00	89.00	90.00	88.00	89.00	90.00	89.17
DEFLUORIDATION PLANT OUTLET REPORT									
Parameters	Unit	Norm	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Average
Fluoride	mg/l	2.0	0.61	0.90	0.44	0.45	0.49	0.75	0.61

ANNEXURE-VII

AMBIENT NOISE LEVEL								
Month	Smelter CISF Barrack		Township Pump House		CPP CISF Barrack		Rolling Plant	
	Day Time (Norm-75 dBA)	Night Time (Norm-70 dBA)	Day Time (Norm-75 dBA)	Night Time (Norm-70 dBA)	Day Time (Norm-75 dBA)	Night Time (Norm-70 dBA)	Day Time (Norm-75 dBA)	Night Time (Norm-70 dBA)
Oct-23	41.40	40.20	41.70	41.00	41.80	41.10	41.60	40.70
Nov-23	41.00	40.10	41.40	40.50	41.30	40.80	41.50	40.70
Dec-23	41.20	40.40	41.60	40.50	41.50	40.60	41.10	40.20
Jan-24	41.40	40.20	41.20	40.10	41.30	40.20	41.60	40.40
Feb-24	41.20	40.00	41.40	40.20	41.40	40.00	41.20	40.00
Mar-24	41.40	40.20	41.60	40.30	41.00	40.20	41.20	40.20

PAH emission from Bake Oven stack-I
All units are in -microgram/Nm³, (Norm - 2 mg/ Nm³)

Date of Sampling:		20.10.2023	11.01.2024
Date of Report:		30.11.2023	07.02.2024
Sl No.	Parameters	Bake oven - I	Bake oven - I
1	Acenaphthene	<0.2	<0.2
2	Acenaphthylene	<0.2	<0.2
3	Anthracene	<0.2	<0.2
4	Benzo(a) Anthracene	<0.2	<0.2
5	Benzo(a) Pyrene	<0.2	<0.2
6	Benzo(b) fluoranthene	<0.2	<0.2
7	Benzo(k) fluoranthene	<0.2	<0.2
8	Chrysene	<0.2	<0.2
9	Dibenz (A, H) Anthracene	<0.2	<0.2
10	Fluoranthene	<0.2	<0.2
11	Fluorene	<0.2	<0.2
12	Indeno(1,2,3-C,D) Pyrene	<0.2	<0.2
13	Napthalene	<0.2	<0.2
14	Phenanthrene	<0.2	<0.2
15	Pyrene	<0.2	<0.2

PAH emission from Bake Oven stack-II
All units are in -microgram/Nm³, (Norm - 2 mg/ Nm³)

Date of Sampling:		20.10.2023	11.01.2024
Date of Report:		30.11.2023	07.02.2024
Sl No.	Parameters	Bake oven - II	Bake oven - II
1	Acenaphthene	<0.2	<0.2
2	Acenaphthylene	<0.2	<0.2
3	Anthracene	<0.2	<0.2
4	Benzo(a) Anthracene	<0.2	<0.2
5	Benzo(a) Pyrene	<0.2	<0.2
6	Benzo(b) fluoranthene	<0.2	<0.2
7	Benzo(k) fluoranthene	<0.2	<0.2
8	Chrysene	<0.2	<0.2
9	Dibenz (A, H) Anthracene	<0.2	<0.2
10	Fluoranthene	<0.2	<0.2
11	Fluorene	<0.2	<0.2
12	Indeno(1,2,3-C,D) Pyrene	<0.2	<0.2
13	Napthalene	<0.2	<0.2
14	Phenanthrene	<0.2	<0.2
15	Pyrene	<0.2	<0.2

Ambient Air Quality Monitoring Report (Online data)**Norm (24Hrs. average):**PM₁₀-100(μg/m³), PM_{2.5}-60(μg/m³), CO-4.0 (mg/m³), SO₂-80 (μg/m³), NO_x-80 (μg/m³)

Ambient Air Quality Monitoring Report for CAAQMS-1 (Nalconagar Township)					
MONTH	PM10 (μg/m³)	PM2.5 (μg/m³)	CO (μg/m³)	SO2 (μg/m³)	NOX (μg/m³)
Oct-23	73.18	46.73	0.835	23.24	22.85
Nov-23	87.34	46.14	0.766	21.67	34.24
Dec-23	88.47	38.64	1.031	16.74	23.84
Jan-24	76.24	34.91	0.953	21.37	26.23
Feb-24	154.34	98.27	0.984	14.57	23.84
Mar-24	75.26	56.79	0.476	13.84	26.67

Ambient Air Quality Monitoring Report for CAAQMS-2 (Defluoridation Plant)					
MONTH	PM10 (μg/m³)	PM2.5 (μg/m³)	CO (mg/m³)	SO2 (μg/m³)	NOX (μg/m³)
Oct-23	56.64	30.94	0.873	17.834	23.66
Nov-23	78.94	41.02	0.501	18.094	26.15
Dec-23	72.64	43.19	0.717	24.77	33.91
Jan-24	64.28	38.87	1.249	19.34	29.58
Feb-24	67.34	30.46	0.927	26.14	46.29
Mar-24	64.29	27.64	0.846	25.49	41.27

Ambient Air Quality Monitoring Report for CAAQMS-3 (Rolling Plant)					
MONTH	PM10 (μg/m³)	PM2.5 (μg/m³)	CO (mg/m³)	SO2 (μg/m³)	NOX (μg/m³)
Oct-23	53.33	20.39	1.217	13.926	30.248
Nov-23	64.234	34.47	1.291	7.16	31.83
Dec-23	69.53	42.64	0.741	19.54	24.71
Jan-24	63.42	41.25	0.253	5.961	31.46
Feb-24	51.49	26.37	1.329	23.49	23.49
Mar-24	50.19	23.19	1.321	22.73	26.34

Ambient Air Quality Monitoring Report for CAAQMS-4 (CISF Colony)					
MONTH	PM10 (μg/m³)	PM2.5 (μg/m³)	CO (mg/m³)	SO2 (μg/m³)	NOX (μg/m³)
Oct-23	62.37	31.46	0.549	14.37	21.94
Nov-23	80.18	40.27	0.472	18.02	36.89
Dec-23	63.51	33.62	0.476	20.44	26.57
Jan-24	77.83	29.34	0.842	14.32	32.54
Feb-24	79.34	34.16	0.592	26.41	45.32
Mar-24	72.64	34.67	1.016	21.47	58.46

Peripheral Development Expenditure details (From October 2023 to March 2024)

CSR EXPENDITURE AT S&P COMPLEX, ANGUL (From October 2023 to March 2024)		
Sl. No.	Task (s) completed	Expenditure incurred during October 2023 to March 2024 (Rs.in lakh)
	<i>Promoting Preventive Health Care and Sanitation and Making Available Safe Drinking Water (Item (i) of Schedule VII)</i>	
1	Operation of 3 Nos Mobile Health Unit (MHU) at peripheral villages of S&P Complex & Coal Mines Division	47.63
2	Operation of Specialist OPD centre at S&P Complex, Angul	33.00
	<i>Protection of National Heritage, Art and Culture (Item No.(v) of Schedule VII)</i>	
3	Contribution towards Angul Zilla Mahotsav(Promotion of traditional arts, music and handicrafts in collaboratio with District Administration	20.00
4	Special Campaign 3.0 under 'Swachhta Hi Seva" at S&P Complex, Angul	0.90
5	Financial support for "Bharat Ke Rang Ekal Ke Sang" a tribal cultural programme	1.70
	<i>Rural Development Projects (Item (x) of Schedule VII)</i>	
6	Installation of street lights on electric polls of village Gobara	2.00
	TOTAL	105.23
Beneficiaries of MHU and Specialist OPD Centre from October 2023 to March 2024		
1	(3 MHUs in 44 Villages)	
	No of Beneficiaries	28026
	No of Camps	747
2	SPECIALIST OPD CENTRE, S&P Complex	
	No of Beneficiaries	7463
Total Beneficiaries		35489

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha - 759145

Report No. : BBS/100
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01105
Sample Description : Ground Water
Sampling Location : Inside Plant Tubewell 1-BW-3
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.93
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	74.0
4.	Chloride (as Cl)	mg/l	250	1000	118.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	384.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1005.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

S. Rang
Report Prepared by:



For Mitra S. K. Private Limited

D.K. Rath

Authorized Signatory

Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha - 759145

Report No. : BBS/101
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01106
Sample Description : Ground Water
Sampling Location : Inside Plant Tubewell 2-BW-4
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.98
2.	Turbidity	N.T.U	1	5	2.0
3.	Calcium (as Ca)	mg/l	75	200	32.0
4.	Chloride (as Cl)	mg/l	250	1000	38.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	164.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	379.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

S. K. Singh
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For Mitra S. K. Private Limited

A.K. Raut

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TEST REPORT

Name & Address of the Customer :
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Smelter Plant
Nalconagar, Angul
Odisha - 759145

Report No. : BBS/102
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01107
Sample Description : Ground Water
Sampling Location : Inside Plant Tubewell 3-BW-5
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	8.14
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	88.0
4.	Chloride (as Cl)	mg/l	250	1000	118.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	396.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1031.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

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Report Prepared by:



For Mitra S. K. Private Limited

A.K. Lath

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha - 759145

Report No. : BBS/103
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01108
Sample Description : Ground Water
Sampling Location : Gopinathpur Open Well
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.89
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	80.0
4.	Chloride (as Cl)	mg/l	250	1000	78.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.22
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	396.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1029.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

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A. K. Raut

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TEST REPORT

Name & Address of the Customer :
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 Odisha - 759145

Report No. : BBS/104
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01109
Sample Description : Ground Water
Sampling Location : Kulad Near College Tube Well
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	8.06
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	75.0
4.	Chloride (as Cl)	mg/l	250	1000	198.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	396.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1002.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

B. Yang
 Report Prepared by:



For Mitra S. K. Private Limited

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TEST REPORT

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Nalconagar, Angul
Odisha - 759145

Report No. : BBS/105
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01110
Sample Description : Ground Water
Sampling Location : Gadarkhai Village Tube Well
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.98
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	77.0
4.	Chloride (as Cl)	mg/l	250	1000	118.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.28
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	384.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1022.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

S. K. Singh
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Name & Address of the Customer :

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 Odisha - 759145

Report No. : BBS/106

Date : 12.12.2023

Sample No. : MSKGL/ED/2023-24/11/01111

Sample Description : Ground Water

Sampling Location : Jhajiribahal Hanuman Murti
 Tubewell

Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.99
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	77.0
4.	Chloride (as Cl)	mg/l	250	1000	119
5.	Flouride (as F)	mg/l	1.0	1.5	0.18
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	400.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1034.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

S. K. Singh
 Report Prepared by:



For Mitra S. K. Private Limited

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TEST REPORT

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Odisha - 759145

Report No. : BBS/107
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01112
Sample Description : Ground Water
Sampling Location : Bonda Near School Tubewell
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.95
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	43.0
4.	Chloride (as Cl)	mg/l	250	1000	38.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.31
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	208.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	628.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

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TEST REPORT

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Nalconagar, Angul
Odisha - 759145

Report No. : BBS/108
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01113
Sample Description : Ground Water
Sampling Location : Mandaberani Tubewell
Date of sampling : 23.11.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.79
2.	Turbidity	N.T.U	1	5	2.0
3.	Calcium (as Ca)	mg/l	75	200	86.0
4.	Chloride (as Cl)	mg/l	250	1000	78.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.39
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	552.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1210.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

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Report Prepared by:



For Mitra S. K. Private Limited

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Odisha - 759145

Report No. : BBS/109
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01114
Sample Description : Surface Water
Sampling Location : RPO Outside SW-1
Date of sampling : 23.11.2023

ANALYSIS RESULT

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Standard as per Sch.VI of EP Rules, 1986 (Inland Surface Water)</u>	<u>Result</u>
1.	pH value at 26°C	---	5.5 – 9.0	7.29
2.	Turbidity	N.T.U	----	78.0
3.	Calcium (as Ca)	mg/l	----	32.0
4.	Chloride (as Cl)	mg/l	----	49.0
5.	Flouride (as F)	mg/l	2.0	0.69
6.	Total Hardness (as CaCO ₃)	mg/l	----	158.0
7.	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm	----	390.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	24.0

A. K. Das
Report Prepared by:



For Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
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 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/110
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01115
Sample Description : Surface Water
Sampling Location : RPO Outside SW-2
Date of sampling : 23.11.2023

ANALYSIS RESULT

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Standard as per Sch.VI of EP Rules, 1986 (Inland Surface Water)</u>	<u>Result</u>
1.	pH value at 26°C	---	5.5 – 9.0	7.34
2.	Turbidity	N.T.U	----	80.0
3.	Calcium (as Ca)	mg/l	----	32.0
4.	Chloride (as Cl)	mg/l	----	46.0
5.	Flouride (as F)	mg/l	2.0	0.49
6.	Total Hardness (as CaCO ₃)	mg/l	----	140.0
7.	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm	----	387.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	28.0

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/711
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01710
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : East Side 250

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.28
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	190.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	26.0

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For Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/712
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01711
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : West Side 250

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ⁰ C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.66
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	204.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	30.0

S. K. Singh
 Report Prepared by:

For Mitra S. K. Private Limited

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 [CIN: U51909WB1956PTC023037]

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 F : (0674) 2362918

TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/713
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01712
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : North Side 250

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.10
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	139.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	27.0

S. K. Singh
 Report Prepared by:

For Mitra S. K. Private Limited

A. K. Patil

Authorized Signatory



Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
 Jaydev Vihar, 1st Floor, IRC Village,
 Bhubaneswar, Khordha, Odisha-751015
 [CIN: U51909WB1956PTC023037]

T : (0674) 2360917, 9777450189
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/714
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01713
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : South Side 250

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.44
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	170.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	35.0

S. Yang
 Report Prepared by:

For Mitra S. K. Private Limited

A.K. Rath

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Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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T : (0674) 2360917, 9777450189
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha, 759145

Report No. : BBS/715
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01714
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : East Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ⁰ C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.91
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	192.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	27.0

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 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/716
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01715
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : West Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.72
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	169.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	24.0

S. K. Singh
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For Mitra S. K. Private Limited

A. K. Das

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TEST REPORT

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National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/717
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01716
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : North Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ⁰ C	None	IS 2720 (Part 26)-1987; Rffm:2007	8.07
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	337.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	31.0

S. K. Ranga
 Report Prepared by:



For Mitra S. K. Private Limited

A. K. Raut
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TEST REPORT

Name & Address of the Customer :
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 Nalconagar, Angul
 Odisha, 759145

Report No. : BBS/718
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01717
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : South Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffin:2007	6.80
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	120.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	21.0

S. K. Singh
 Report Prepared by:



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Mitra S. K. Private Limited

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[CIN: U51909WB1956PTC023037]

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha, 759145

Report No. : BBS/719
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01718
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : North East Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ⁰ C	None	IS 2720 (Part 26)-1987; Rffm:2007	7.94
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	298.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	26.0

S. Yang
Report Prepared by:

For Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
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Nalconagar, Angul
Odisha, 759145

Report No. : BBS/720
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01719
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : North West Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffin:2007	6.97
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	135.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	23.0

S. K. Patra
Report Prepared by:



For Mitra S. K. Private Limited

A. K. Patra

Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha, 759145

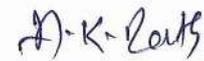
Report No. : BBS/721
Date : 12.12.2023
Sample No. : MSKGL/ED/20223-24/11/01720
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : South East Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ^o C	None	IS 2720 (Part 26)-1987; Rffin:2007	8.07
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	260.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	27.0


Report Prepared by:

For Mitra S. K. Private Limited



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Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha, 759145

Report No. : BBS/722
Date : 12.12.2023
Sample No. : MSKGL/ED/2023-24/11/01721
Sample Description : Soil
Date of sampling : 23.11.2023
Sampling Location : South West Side 500

ANALYSIS RESULT

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH (1:2.5) at 25 ⁰ C	None	IS 2720 (Part 26)-1987; Rffm:2007	8.22
2.	Cyanide (as CN)	mg/kg	EPA 9010 C-November, 2004	<1.0
3.	Electrical Conductivity (1:2)	us/cm	IS 14767:2000, RA 2016	310.0
4.	Fluoride (as F)	mg/kg	TPM/MSK/P&E/1/24	30.0

S. K. Singh
Report Prepared by:



For Mitra S. K. Private Limited

A. K. Reddy
Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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 [CIN: U51909WB1956PTC023037]

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/100
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01105
Sample Description : Ground Water
Sampling Location : Inside Plant Tubewell 1-BW-3
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.88
2.	Turbidity	N.T.U	1	5	2.1
3.	Calcium (as Ca)	mg/l	75	200	45.0
4.	Chloride (as Cl)	mg/l	250	1000	95.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	340.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	970.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

Report Prepared by: 



For Mitra S. K. Private Limited



Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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 [CIN: U51909WB1956PTC023037]

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/101
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01106
Sample Description : Ground Water
Sampling Location : Inside Plant Tubewell 2-BW-4
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.47
2.	Turbidity	N.T.U	1	5	3.2
3.	Calcium (as Ca)	mg/l	75	200	35.0
4.	Chloride (as Cl)	mg/l	250	1000	42.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	196.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	350.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

Report Prepared by: 



For Mitra S. K. Private Limited



Authorized Signatory

Mitra S. K. Private Limited

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 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/102
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01107
Sample Description : Ground Water
Sampling Location : Inside Plant Tubewell 3-BW-5
Date of sampling : 28.02.2023

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.86
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	90.0
4.	Chloride (as Cl)	mg/l	250	1000	126.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	410.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1014.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

Report Prepared by: 



For Mitra S. K. Private Limited


 Authorized Signatory

Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
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Nalconagar, Angul
Odisha - 759145

Report No. : BBS/103
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01108
Sample Description : Ground Water
Sampling Location : Gopinathpur Open Well
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	6.97
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	72.0
4.	Chloride (as Cl)	mg/l	250	1000	88.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.21
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	428.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1140.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	8.0

Report Prepared by: 



For Mitra S. K. Private Limited


Authorized Signatory

Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
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Nalconagar, Angul
Odisha - 759145

Report No. : BBS/104
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01109
Sample Description : Ground Water
Sampling Location : Kulad Near College Tube Well
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	8.14
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	72.0
4.	Chloride (as Cl)	mg/l	250	1000	194.0
5.	Flouride (as F)	mg/l	1.0	1.5	BDL(DL:0.1)
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	370.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	870.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

Report Prepared by: 



For Mitra S. K. Private Limited


Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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 [CIN: U51909WB1956PTC023037]

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TEST REPORT

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 Odisha - 759145

Report No. : BBS/105
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01110
Sample Description : Ground Water
Sampling Location : Gadarkhai Village Tube Well
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.67
2.	Turbidity	N.T.U	1	5	1.8
3.	Calcium (as Ca)	mg/l	75	200	70.0
4.	Chloride (as Cl)	mg/l	250	1000	107.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.19
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	392.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	990.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

Report Prepared by: *g*



For Mitra S. K. Private Limited

A. W. Datta

Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
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 [CIN: U51909WB1956PTC023037]

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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
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 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/106
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01111
Sample Description : Ground Water
Sampling Location : Jhajiribahal Hanuman Murti
 Tubewell
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	8.02
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	69.0
4.	Chloride (as Cl)	mg/l	250	1000	97.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.22
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	430.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1066.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	10.0

Report Prepared by: 



For Mitra S. K. Private Limited


 Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
Jaydev Vihar, 1st Floor, IRC Village,
Bhubaneswar, Khordha, Odisha-751015
[CIN: U51909WB1956PTC023037]

T : (0674) 2360917, 9777450189
F : (0674) 2362918

TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
Smelter Plant
Nalconagar, Angul
Odisha - 759145

Report No. : BBS/107
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01112
Sample Description : Ground Water
Sampling Location : Bonda Near School Tubewell
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.90
2.	Turbidity	N.T.U	1	5	2.4
3.	Calcium (as Ca)	mg/l	75	200	48.0
4.	Chloride (as Cl)	mg/l	250	1000	34.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.34
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	220.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	710.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	BDL(DL:4.0)

Report Prepared by: 



For Mitra S. K. Private Limited



Authorized Signatory

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
 Jaydev Vihar, 1st Floor, IRC Village,
 Bhubaneswar, Khordha, Odisha-751015
 [CIN: U51909WB1956PTC023037]

T : (0674) 2360917, 9777450189
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/108
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01113
Sample Description : Ground Water
Sampling Location : Mandabereni Tubewell
Date of sampling : 28.02.2024

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 – 2012

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement (Acceptable Limit)</u>	<u>Permissible limit in the absence of alternate Source</u>	<u>Result</u>
1.	pH value at 26°C	---	6.5 - 8.5	No Relaxation	7.54
2.	Turbidity	N.T.U	1	5	3.4
3.	Calcium (as Ca)	mg/l	75	200	90.0
4.	Chloride (as Cl)	mg/l	250	1000	69.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.42
6.	Total Hardness (as CaCO ₃)	mg/l	200	600	570.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm	----	----	1340.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	----	12.0

Report Prepared by: 



For Mitra S. K. Private Limited


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Mitra S. K. Private Limited

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 Bhubaneswar, Khordha, Odisha-751015
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TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/109
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01114
Sample Description : Surface Water
Sampling Location : RPO Outside SW-1
Date of sampling : 28.02.2028

ANALYSIS RESULT

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Standard as per Sch.VI of EP Rules, 1986 (Inland Surface Water)</u>	<u>Result</u>
1.	pH value at 26°C	---	5.5 – 9.0	7.33
2.	Turbidity	N.T.U	----	64.0
3.	Calcium (as Ca)	mg/l	----	35.0
4.	Chloride (as Cl)	mg/l	----	52.0
5.	Flouride (as F)	mg/l	2.0	0.72
6.	Total Hardness (as CaCO ₃)	mg/l	----	194.0
7.	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm	----	490.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	28.0

Report Prepared by: 



For Mitra S. K. Private Limited


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Mitra S. K. Private Limited

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 [CIN: U51909WB1956PTC023037]

T : (0674) 2360917, 9777450189
 F : (0674) 2362918

TEST REPORT

Name & Address of the Customer :
National Aluminium Company Limited
 Smelter Plant
 Nalconagar, Angul
 Odisha - 759145

Report No. : BBS/110
Date : 15.03.2024
Sample No. : MSKGL/ED/2023-24/02/01115
Sample Description : Surface Water
Sampling Location : RPO Outside SW-2
Date of sampling : 28.02.2024

ANALYSIS RESULT

<u>SL. No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Standard as per Sch.VI of EP Rules, 1986 (Inland Surface Water)</u>	<u>Result</u>
1.	pH value at 26°C	---	5.5 – 9.0	7.74
2.	Turbidity	N.T.U	----	89.0
3.	Calcium (as Ca)	mg/l	----	40.0
4.	Chloride (as Cl)	mg/l	----	59.0
5.	Flouride (as F)	mg/l	2.0	0.34
6.	Total Hardness (as CaCO ₃)	mg/l	----	166.0
7.	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm	----	370.0
9.	Chemical Oxygen Demand (as COD)	mg/l	----	20.0

Report Prepared by: 



For Mitra S. K. Private Limited


 Authorized Signatory