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

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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.	 (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 April 2023 to September 2023 the report of emission of particulate matter is given at Annexure- III and emission of Fluoride is given at Annexure-IV. (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. (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 April 2023 to September 2023 is given at Annexure-IX.
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 waste 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. Recycled water is being used for green belt development, cooling tower make up and fire fighting 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	Steps are being taken to minimize fugitive emission from various sources. De- dusting systems have been installed at each material transfer points. Monitoring

		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/Nm3.	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 April 2023 to September 2023 are given in Annexure – IV. 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. During April 2023 to September 2023 , the average level of fluoride in grass samples in those villages are given in Annexure-V.
4.	Air quality monitoring and preservation	A.(iv) The Poly-aromatic Hydrocarbons from the carbon plant (anode bake oven) should not exceed 2mg/Nm3. The data on PAH should be monitored quarterly and report submitted to the Ministry/ RO, Bhubaneswar and SPCB.	During April 2023 to September 2023 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. (agency, 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 April 2023 to September 2023 is 1950 nos. Cumulative 17 , 68 , 735 nos. 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	During April 2023 to September 2023 , Total 2265 workers (regular employees: 1181 &

		done on a regular basis and records	contractual workers: 1084) were undergone
		maintained as per the Factories Act	Periodical Medical Examination (PME).
8.	Water quality monitoring and preservation	A.(viii) Company should undertake rain water-harvesting measures to re- charge 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	A.(ix) M/s NALCO should comply	Complied.
	compliance	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.	Progress report is enclosed at Annexure-II.
10.	Corporate	A. (x) All the recommendations made	The status of compliance of CREP
	l responsibility	Responsibility for Environment Protection (CREP) for the Aluminium Sector should be strictly implemented.	requirements is given at A nnexure-1.
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, SO2, NOX 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.	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. The results of stack emission for the period April 2023 to September 2023 are within norm (Refer Annexure III & IV).

			Air Quality Monitoring Report (Online data) for the period April 2023 to September 2023 is given at Annexure-IX . The data from online monitoring stations are sent to OSPCB and CPCB servers continuously.
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.	The industrial waste (surface) water is properly collected & treated so as to meet the prescribed norms. The waste water analysis report during the period April 2023 to September 2023 is given at Annexure-VI. A recycling sump of 2 x 480 m ³ 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. 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.
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 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).	The ambient noise level is measured at four locations around Smelter Plant i.e. CISF Barrack, Smelter Plant, Pump House, Township, CISF Barrack, CPP and Rolling Plant. The noise level is within the permissible norms. During April 2023 to September 2023 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 environmenta l 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	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

		community development programmes, educational programmes, drinking water supply and health care etc	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 730.08 lakh during April 2023 to September 2023. Details are given in Amesure-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 so provided should not be diverted for any other purposes.	Complied.
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	B. (xi) The Project Authorities should	Complied.
	compliance	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.	

CO	MPLIANCE ST	ATUS OF CREP		
SI. 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	Complied
			0.8 kg/1	(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 April 2023 to September 2023, Specific Consumption as F is 11.569 kg/T. (Technically not feasible to achieve 10 kg/T standard with the present AP-18 Technology and available raw materials used.)

COI	COMPLIANCE STATUS OF CREP								
SI.	Issues	Action Points	Targets	Status					
No.									
4	Ambient Fluoride	Forage fluoride standards	 Twelve consecutive months average - 40 ppm Two consecutive months Average - 60 ppm One month - 80 ppm 	The monitoring is being done for grass samples in surrounding villages and the results are within norms.(Annexure-IX)					
		Measurement of forage fluoride	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						
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 April 2023 to September 2023 is 4085.58 days.					
		SPL(Carbon&Refractory)tobedisposedinSecuredLandfill.	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/Nm3	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.	Suggested action plan	Implementing	Status
No.		agency	
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	Installation of 82000 m3/hr, 62000 m3/hr bag filters and 12,000 m3/hr bag filters at anode butt crusher of Rodding Shop- 1.
07	Development of adequate green belts around industries.	Industries	Plantation during April 2023 to September 2023 is 1950 nos. Cumulative 17 , 68 , 735 nos. 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 April 2023 to September 2023 is 1950 nos. Cumulative 17 , 68 , 735 nos. 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/Nm ³)									
LOCATION	Norm	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Average	
Bake Oven-I	50mg/NM ³	40.5	25.815	36.155	20.69	30.93	30.385	30.75	
Bake Oven-II	50mg/NM ³	39.885	34.57	32.55	43.655	40.72	47.33	39.79	
			I.			I		1	

Particulate Matter Emission From Potline FTP Stacks (All units are in mg/Nm ³)									
LOCATION	Norm	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Average	
FTP-1	100mg/NM ³	28.17	29.255	28.15	30.995	28.83	22.365	27.959	
FTP-2	100mg/NM ³	31.04	22.72	27.12	34.455	30.02	26.99	28.724	
FTP-3	100mg/NM ³	24.18	25.265	36.18	27.655	22.63	17.825	25.623	
FTP-4	100mg/NM ³	21.36	28.58	28.97	21.5	24.82	27.245	25.413	
FTP-5	100mg/NM ³	37.52	62.045	38.84	39.13	42.54	31.65	41.953	
FTP-6	100mg/NM ³	40.61	38.465	33.18	42.42	34.395	28.485	36.258	
FTP-7	100mg/NM ³	35.13	39.62	38.77	38.3	43.17	37.815	38.799	
FTP-8	100mg/NM ³	27.62	42.085	44.35	41.395	30.92	43.23	38.265	

ANNEXURE- IV

FLUORIDE EMISSION FROM STACKS (All units are in Kg/T of Aluminium Produce)								
LOCATION	Norm	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Average
A) POTLINE								
Fluoride Emission from FTP 1 to 8 Stacks	0.3 kg/T of Al	0.194	0.206	0.187	0.195	0.219	0.155	0.193
Fugitive Emission of Fluoride from each Potroom.	0.4Kg/T of Al	0.155	0.22	0.166	0.184	0.183	0.161	0.178
B) BAKE OVEN		-	-	-	-			
Fluoride emission from FTC Stacks 1 & II of Bake Ovens	0.1 Kg/T of Al	0.027	0.01	0.018	0.016	0.017	0.018	0.018
C) Total Fluoride Emission.	0.8 Kg/T of Al	0.376	0.436	0.371	0.395	0.419	0.334	0.389

ANNEXURE-V

	FORAGE FLUORIDE MONITORING (GRASS SAMPLES) REPORTS											
	(All values are in ppm)											
Norm: Si	ngle month- 80 ppm, Avera	age of 2 cor	isecutive mo	nths: 60 ppm,	Average An	nual: 40 ppr	n					
SI. No.	Location / villages	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23					
1.	Bonda	40.00	38.60	38.58	36.65	38.50	38.20					
2.	Tulsipal	38.90	37.50	39.60	38.50	38.00	37.90					
3.	Languliabeda	39.20	35.50	39.10	34.50	37.50	39.10					
4.	Banarpal	38.40	38.00	36.00	35.10	39.50	38.30					
5.	Turang	39.30	38.20	37.50	39.50	38.50	39.70					
6.	Balramprasad	39.50	38.90	38.20	38.00	38.00	38.60					

ANNEXURE-VI

WASTE WATER ANALYSIS REPORT										
	Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Average									
Parameters	Unit	Norm								
		6.5 to	7.00	7.20	7.10	7.10	6.90	6.90	7.03	
рН		9.0								
			45.00	8.00	18.00	8.00	2.00	2.00	13.83	
TSS	mg/l	<100								
BOD 3days at			5.00	3.00	10.00	2.00	7.00	6.00	5.50	
27 deg.C	mg/l	<30								
	MPN/		80.00	82.00	81.00	85.00	87.00	84.00	83.17	
Fecal Coliform	100ml	<100								

ANNEXURE-VII

	AMBIENT NOISE LEVEL									
	Smelter CI	SF Barrack	Township P	ump House	CPP CISF	Barrack	Rolling Plant			
		Night		Night		Night		Night		
	Day Time	Time	Day Time	Time	Day Time	Time	Day Time	Time		
	(Norm-75	(Norm-70	(Norm-75	(Norm-70	(Norm-75	(Norm-70	(Norm-75	(Norm-70		
Month	dBA)	dBA)	dBA)	dBA)	dBA)	dBA)	dBA)	dBA)		
Apr-23	42.00	41.20	42.50	41.30	42.60	41.40	42.80	41.50		
May-23	41.80	41.00	42.40	41.60	42.00	41.40	42.10	41.20		
Jun-23	42.20	41.20	42.90	41.40	42.60	41.10	42.00	41.10		
Jul-23	41.80	41.00	42.20	41.20	42.40	41.00	42.20	41.30		
Aug-23	42.60	42.00	43.30	42.60	43.80	43.00	43.50	42.80		
Sep-23	41.20	40.40	41.60	41.00	42.00	41.20	41.40	40.80		

Date of Sa	ampling:	21.04.2023	21.07.2023
Date of R	eport:	09.05.2023	11.08.2023
SI 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-I

All units are in -microgram/Nm³, (Norm - 2 mg/ Nm³)

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

Date of Sa	ampling:	21.04.2023	21.07.2023
Date of R	eport:	09.05.2023	11.08.2023
SI 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

ANNEXURE-IX

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), NOx-80 (µg/m³)

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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)				
Apr-23	88.73	43.57	1.024	17.26	23.49				
May-23	75.34	39.75	0.875	14.27	18.76				
Jun-23	72.46	47.26	1.207	16.48	16.82				
Jul-23	54.89	18.2	0.896	13.09	16.69				
Aug-23	61.49	25.47	0.462	15.24	17.63				
Sep-23	57.29	30.14	0.385	17.24	25.34				

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)				
Apr-23	68.47	35.84	1.183	19.82	13.86				
May-23	58.3	29.47	1.116	19.81	13.93				
Jun-23	55.99	34.72	1.126	18.34	12.47				
Jul-23	46.96	19.28	1.23	19.9	13.94				
Aug-23	39.82	24.68	0.936	17.38	15.34				
Sep-23	43.41	22.67	0.43	11.83	13.95				

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)				
Apr-23	78.66	38.57	1.4	6.93	27.99				
May-23	76.606	42.53	1.399	14.87	28.29				
Jun-23	77.26	42.42	1.39	12.833	28.31				
Jul-23	64.68	27.54	1.38	6.73	28.33				
Aug-23	44.54	25.54	2.19	15.34	28.35				
Sep-23	44.16	26.19	1.399	16.75	28.28				

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)				
Apr-23	66.28	29.38	1.247	21.71	16.18				
May-23	65.11	30.08	0.513	19.71	16.35				
Jun-23	66.56	29.3	0.303	17.25	16.37				
Jul-23	63.46	29.7	0.294	5.02	16.389				
Aug-23	64.1	30.6	0.254	14.29	17.34				
Sep-23	56.63	29.07	0.246	8.489	16.3				

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	CSR EXPENDITURE AT S&P COMPLEX, (From April 2023 to September 20	, ANGUL 023)
SI. No.	Task (s) completed	Expenditure incurred during April 2023 to September 2023 (Rs.in lakh)
	Education and Vocational Skill:	
1	NALCO Merit Award to the Best Matriculates of Peripheral High Schools for the year 2023, at S&P Complex, Angul	1.62
	Health Care, Sanitation and Drinking water	
1	Operation of 3 Nos Mobile Health Unit (MHU) at peripheral villages of S&P Complex & Coal Mines Division	49.28
2	Operation of Specialist OPD centre at S&P Complex, Angul	21.36
3	Supply of Drinking Water through tankers in the Peripheral Villages of S & P Complex, Angul during summer 2023	17.22
4	Drawal of clear water from 4.5MLD WTP at Jhadiamba near Santhapada village through 8.45KM MS clearwater pipe line along NALCO raw water pipeline from river Brahmani	640.60
	TOTAL	730.08
	Beneficiaries of MHU and Specialist OPD Ce April 2023 to September 2023	ntre from
	(3 MHUs in 44 Villages)	
1	No of Beneficiaries	34508
	No of Camps	783
	SPECIALIST OPD CENTRE, S&P Co	mplex

2

No of Beneficiaries

Total Beneficiaries

Peripheral Development Expenditure details (From April 2023 to September 2023)

ANNEXURE-XI

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/500Date: 07.06.2023Sample No. : MSKGL/ED/2023-24/05/01100Sample Description : Ground WaterSampling Location : Inside Plant Tubewell 1-BW-3Date of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	<u>Result</u>
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.18
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	24.0
4.	Chloride (as Cl)	mg/l	250	1000	39.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.57
6.	Total Hardness (as CaCO3)	mg/l	200	600	248.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			480.0
9.	Chemical Oxygen Demand (as COD)	mg/l			8.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report Prepared by:



For Mitra S. K. Private Limited

A.K. Lats Authorized Signatory



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/501Date: 07.06.2023Sample No. : MSKGL/ED/2023-24/05/01101Sample Description : Ground WaterSampling Location : Inside Plant Tubewell 2-BW-4Date of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.04
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	30.0
4.	Chloride (as Cl)	mg/l	250	1000	41.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.58
6.	Total Hardness (as CaCO3)	mg/l	200	600	210.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			550.0
0	Chemical Oxygen Demand (as COD)	mg/l			6.4
10	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

ed by: Report



For Mitra S. K. Private Limited

A.K. Routh

Authorized Signatory

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/502Date: 25.06.2023Sample No. : MSKGL/ED/2023-24/05/01102Sample Description : Ground WaterSampling Location : Inside Plant Tubewell 3-BW-5Date of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	<u>Result</u>
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.29
2.	Turbidity	N.T.U	1	5	3.4
3.	Calcium (as Ca)	mg/l	75	200	28.0
4.	Chloride (as Cl)	mg/l	250	1000	118.0
5.	Flouride (as F)	mg/l	1.0	1.5	1.4
6.	Total Hardness (as CaCO3)	mg/l	200	600	340.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			630.0
9.	Chemical Oxygen Demand (as COD)	mg/l			6.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

S.Kamp Report Prepared by:



For Mitra S. K. Private Limited

A'K- Rats Authorized Signatory



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/502Date: 07.06.2023Sample No. : MSKGL/ED/2023-24/03/01103Sample Description : Ground WaterSampling Location : Gopinathpur Open WellDate of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	<u>Result</u>
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.41
2.	Turbidity	N.T.U	1	5	4.7
3.	Calcium (as Ca)	mg/l	75	200	54.0
4.	Chloride (as Cl)	mg/l	250	1000	66.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.72
6.	Total Hardness (as CaCO3)	mg/l	200	600	229.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			610.0
9.	Chemical Oxygen Demand (as COD)	mg/l			12.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report Prepared by:



For Mitra S. K. Private Limited

A.K. Routh Authorized Signatory

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

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Report No. : BBS/503Date: 07.06.2023Sample No. : MSKGL/ED/2023-24/05/01104Sample Description : Ground WaterSampling Location: Kulad Near College TubeWellDate of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	<u>Result</u>
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.56
2.	Turbidity	N.T.U	1	5	3.6
3.	Calcium (as Ca)	mg/l	75	200	40.0
4.	Chloride (as Cl)	mg/l	250	1000	52.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.65
6.	Total Hardness (as CaCO3)	mg/l	200	600	204.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			380.0
9.	Chemical Oxygen Demand (as COD)	mg/l			4.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report Prepared by:



For Mitra S. K. Private Limited

A.K. Rolls

Authorized Signatory



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/504Date: 05.06.2023Sample No. : MSKGL/ED/2023-24/05/01105Sample Description : Ground WaterSampling Location : Gadarkhai Village Tube WellDate of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	6.89
2.	Turbidity	N.T.U	1	5	2.6
3.	Calcium (as Ca)	mg/l	75	200	64.0
4.	Chloride (as Cl)	mg/l	250	1000	170.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.88
6.	Total Hardness (as CaCO3)	mg/l	200	600	400.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			720.0
9.	Chemical Oxygen Demand (as COD)	mg/l			8.4
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report P d by:



For Mitra S. K. Private Limited

A.K. Lerth

Authorized Signatory



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

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

TEST REPORT

Report No. : BBS/505Date: 05.06.2023Sample No. : MSKGL/ED/2023-24/05/01106Sample Description : Ground WaterSampling Location: Jhajiribahal Hanuman MurtiTubewell: 26.05.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.28
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	52.0
4.	Chloride (as Cl)	mg/l	250	1000	140.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.58
6.	Total Hardness (as CaCO3)	mg/l	200	600	317.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			428.0
9.	Chemical Oxygen Demand (as COD)	mg/l		· · · · · · · · · · · · · · · · · · ·	8.6
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

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For Mitra S. K. Private Limited

A.K. Parts

Authorized Signatory

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

TEST REPORT

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

Name & Address of the Customer : National Aluminium Company Limited Smelter Plant Nalconagar, Angul Odisha - 759145 Report No. : BBS/506Date: 05.06.2023Sample No. : MSKGL/ED/2023-24/05/01107Sample Description : Ground WaterSampling Location : Bonda Near School TubewellDate of sampling: 26.05.2023

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	CARENICAL AVALIBIS RESULT AS I EN 15, 10500 - 2012							
<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	<u>Result</u>			
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.10			
2.	Turbidity	N.T.U	1	5	4.1			
3.	Calcium (as Ca)	mg/l	75	200	59.0			
4.	Chloride (as Cl)	mg/l	250	1000	154.0			
5.	Flouride (as F)	mg/l	1.0	1.5	0.74			
6.	Total Hardness (as CaCO3)	mg/l	200	600	390.0			
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)			
8.	Conductivity	us/cm			540.0			
9.	Chemical Oxygen Demand (as COD)	mg/l			8.2			
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)			

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

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For Mitra S. K. Private Limited

A.K. Ports

Authorized Signatory



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/507Date: 05.06.2023Sample No. : MSKGL/ED/2023-24/05/01108Sample Description : Ground WaterSampling Location : Mandabereni TubewellDate of sampling: 26.05.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.08
2.	Turbidity	N.T.U	1	5	1.6
3.	Calcium (as Ca)	mg/l	75	200	52.0
4.	Chloride (as Cl)	mg/l	250	1000	141.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.74
6.	Total Hardness (as CaCO3)	mg/l	200	600	280.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			358.0
9.	Chemical Oxygen Demand (as COD)	mg/l			8.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

d by: Report



For Mitra S. K. Private Limited

A.K. Parts

Authorized Signatory

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/508Date: 05.06.2023Sample No. : MSKGL/ED/2023-24/05/01110Sample Description : Surface WaterSampling Location : RPO Outside SW-1Date of sampling: 26.05.2023

ANALYSIS RESULT

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	Unit	<u>Standard as per Sch.VI of</u> <u>EP Rules, 1986</u> <u>(Inland Surface Water)</u>	Result
1.	pH value at 26°C	· · ·	5.5 - 9.0	6.95
2.	Turbidity	N.T.U		84.0
3.	Calcium (as Ca)	mg/l·	· · · · · · · · · · · · · · · · · · ·	41.0
4.	Chloride (as Cl)	mg/l		52.0 .
5.	Flouride (as F)	mg/l	2.0	0.71
6.	Total Hardness (as CaCO3)	mg/l		180.0
. 7.	Cyanide (as CN)	mg/l .	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm		430.0
9.	Chemical Oxygen Demand (as COD)	mg/l		16.0

Report P repared



For Mitra S. K. Private Limited

A.K. lats

Authorized Signatory

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/509
Date	: 05.06.2023
Sample No.	: MSKGL/ED/2023-24/05/01111
Sample Des	cription : Surface Water
Sampling Lo	ocation : RPO Outside SW-2
Date of sam	pling : 26.05.2023

ANALYSIS RESULT

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Standard as per Sch.VI of</u> <u>EP Rules, 1986</u> (Inland Surface Water)	Result
. 1.	pH value at 26°C		5.5 - 9.0	7.42
2.	Turbidity	N.T.U		69.0
3.	Calcium (as Ca)	mg/ļ		34.0
· 4.	Chloride (as Cl)	mg/l		40.0
5.	Flouride (as F)	. mg/l	2.0	0.62
6.	Total Hardness (as CaCO3)	mg/l		161.0
7. '	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm		298.0
9.	Chemical Oxygen Demand (as COD)	mg/l	·	20.0

Report F epared by:



For Mitra S. K. Private Limited

A.K. Rats

Authorized Signatory



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/706Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00606Sample Description : Ground WaterSampling Location : Inside Plant Tubewell 1-BW-3Date of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.22
2.	Turbidity	N.T.U	1	5	2.1
3.	Calcium (as Ca)	mg/l	75	200	21.0
4.	Chloride (as Cl)	mg/l	250	1000	35.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.46
6.	Total Hardness (as CaCO3)	mg/l	200	600	229.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			370.0
9.	Chemical Oxygen Demand (as COD)	mg/l			12.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report Prepared by:



For Mitra S. K. Private Limited

A.K. Duts

Authorized Signatory



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/707Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00607Sample Description : Ground WaterSampling Location : Inside Plant Tubewell 2-BW-4Date of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.16
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	200	1.8
4.	Chloride (as Cl)	mg/l	250	1000	36.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.49
6.	Total Hardness (as CaCO3)	mg/l	200	600	207.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			497.0
9.	Chemical Oxygen Demand (as COD)	mg/l			8.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

S. Kamp Report Prepared by:



For Mitra S. K. Private Limited

A.K. Roth

Authorized Signatory

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/708 Date : 15.09.2023 Sample No. : MSKGL/ED/2023-24/08/00608 Sample Description : Ground Water Sampling Location : Inside Plant Tubewell 3-BW-5 Date of sampling : 11.08.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	Requirement (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.32
2.	Turbidity	N.T.U	1	5	4.1
3.	Calcium (as Ca)	mg/l	75	200	30.0
4.	Chloride (as Cl)	mg/l	250	1000	79.0
5.	Flouride (as F)	mg/l	1.0	1.5	1.1
6.	Total Hardness (as CaCO3)	mg/l	200	600	310.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			590.0
9.	Chemical Oxygen Demand (as COD)	mg/l			7.6
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report F d by:



For Mitra S. K. Private Limited

A.K. Poth

Authorized Signatory



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/709Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00609Sample Description : Ground WaterSampling Location : Gopinathpur Open WellDate of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.56
2.	Turbidity	N.T.U	1	5	4.5
3.	Calcium (as Ca)	mg/l	75	200	52.0
4.	Chloride (as Cl)	mg/l	250	1000	62.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.54
6.	Total Hardness (as CaCO3)	mg/l	200	600	234.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			510.0
9.	Chemical Oxygen Demand (as COD)	mg/l			10.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

d by:



For Mitra S. K. Private Limited

A.K. Puts

Authorized Signatory



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/709Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00609Sample Description : Ground WaterSampling Location: Kulad Near College TubeWellDate of sampling: 11.08.2023

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<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C	(1997)	6.5 - 8.5	No Relaxation	7.67
2.	Turbidity	N.T.U	1	5	2.9
3.	Calcium (as Ca)	mg/l	75	200	34.0
4.	Chloride (as Cl)	mg/l	250	1000	49.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.51
6.	Total Hardness (as CaCO3)	mg/l	200	600	198.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			320.0
9.	Chemical Oxygen Demand (as COD)	mg/l			6.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Report Prepar ed by:



For Mitra S. K. Private Limited

A.K. Puts

Authorized Signatory

Plot No-687/2428, Ekamra Villa Square, Jaydev Vihar, 1st Floor, IRC Village, Bhubaneswar, Khordha, Odisha-751015 [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/710Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00610Sample Description : Ground WaterSampling Location : Gadarkhai Village Tube WellDate of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable Limit)	Permissible limit in the absence of alternate Source	<u>Result</u>
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.01
2.	Turbidity	N.T.U	1	5	1.8
3.	Calcium (as Ca)	mg/l	75	200	52.0
4.	Chloride (as Cl)	. mg/l	250	1000	128.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.71
6.	Total Hardness (as CaCO3)	mg/l	200	600	390.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			670.0
9.	Chemical Oxygen Demand (as COD)	mg/l			10.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

ed by:



For Mitra S. K. Private Limited

A.K. Parts

Authorized Signatory

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/711Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00611Sample Description : Ground WaterSampling Location: Jhajiribahal Hanuman MurtiTubewellDate of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.20
2.	Turbidity	N.T.U	1	5	BDL(DL:1.0)
3.	Calcium (as Ca)	mg/l	75	- 200	48
4.	Chloride (as Cl)	mg/l	250	1000	132.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.50
6.	Total Hardness (as CaCO3)	mg/l	200	600	297.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			330.0
9.	Chemical Oxygen Demand (as COD)	mg/l			9.1
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

Repórt ed by:



For Mitra S. K. Private Limited

A.K. Perts

Authorized Signatory

Plot No-687/2428, Ekamra Villa Square, Jaydev Vihar, 1st Floor, IRC Village, Bhubaneswar, Khordha, Odisha-751015 [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/712Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00612Sample Description : Ground WaterSampling Location : Bonda Near School TubewellDate of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	<u>Test Parameters</u>	<u>Unit</u>	<u>Requirement</u> (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.07
2.	Turbidity	N.T.U	1	5	3.8
3.	Calcium (as Ca)	mg/l	75	200	49.0
4.	Chloride (as Cl)	mg/l	250	1000	139.0
5.	Flouride (as F)	mg/l	1.0	1.5	0.60
6.	Total Hardness (as CaCO3)	mg/l	200	600	387.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			520.0
9.	Chemical Oxygen Demand (as COD)	mg/l			9.6
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012



For Mitra S. K. Private Limited

A.K. Ruff

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Plot No-687/2428, Ekamra Villa Square, Jaydev Vihar, 1st Floor, IRC Village, Bhubaneswar, Khordha, Odisha-751015 [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/713Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00613Sample Description : Ground WaterSampling Location : Mandabereni TubewellDate of sampling: 11.08.2023

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Requirement</u> (Acceptable <u>Limit)</u>	Permissible limit in the absence of alternate Source	Result
1.	pH value at 26°C		6.5 - 8.5	No Relaxation	7.08
2.	Turbidity	N.T.U	1	5	1.4
3.	Calcium (as Ca)	mg/l	75	200	45.0
4.	Chloride (as Cl)	mg/l	250	1000	129.0
5.	Flouride (as F)	mg/l	1.0	15	0.51
6.	Total Hardness (as CaCO3)	mg/l	200	600	296.0
7.	Cyanide (as CN)	mg/l	0.05	No Relaxation	BDL(DL:0.01)
8.	Conductivity	us/cm			331.0
9.	Chemical Oxygen Demand (as COD)	mg/l			8.0
10.	Arsenic (as As)	mg/l	0.01	No Relaxation	BDL(DL:0.005)

CHEMICAL ANALYSIS RESULT AS PER IS: 10500 - 2012

S. Yang Report Prepared by:



For Mitra S. K. Private Limited

A.K. Pats

Authorized Signatory

Plot No-687/2428, Ekamra Villa Square, Jaydev Vihar, 1st Floor, IRC Village, Bhubaneswar, Khordha, Odisha-751015 [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/714Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00614Sample Description : Surface WaterSampling Location : RPO Outside SW-1Date of sampling: 11.08.2023

ANALYSIS RESULT

<u>SL.</u> No.	Test Parameters	<u>Unit</u>	<u>Standard as per Sch.VI of</u> <u>EP Rules, 1986</u> (Inland Surface Water)	Result
1.	pH value at 26°C		5.5 - 9.0	6.87
2.	Turbidity	N.T.U		78.0
3.	Calcium (as Ca)	mg/l		42.0
4.	Chloride (as Cl)	mg/l		54.0
5.	Flouride (as F)	mg/l	2.0	0.74
6.	Total Hardness (as CaCO3)	mg/l		204.0
7.	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm		456.0
9.	Chemical Oxygen Demand (as COD)	mg/l		14.0

(.Kang Report Prepared by:



For Mitra S. K. Private Limited

A.K. Lath

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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/715Date: 15.09.2023Sample No. : MSKGL/ED/2023-24/08/00615Sample Description : Surface WaterSampling Location : RPO Outside SW-2Date of sampling: 11.08.2023

ANALYSIS RESULT

<u>SL.</u> <u>No.</u>	Test Parameters	<u>Unit</u>	<u>Standard as per Sch.VI of</u> <u>EP Rules, 1986</u> (Inland Surface Water)	Result
1.	pH value at 26°C		5.5-9.0	7.42
2.	Turbidity	N.T.U		62.6
3.	Calcium (as Ca)	mg/l		37.0
4.	Chloride (as Cl)	mg/l		46.0
5.	Flouride (as F)	mg/l	2.0	0.65
6.	Total Hardness (as CaCO3)	mg/l		174.0
7.	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.01)
8.	Conductivity	us/cm		320.0
9.	Chemical Oxygen Demand (as COD)	mg/l		24.0

Report Prepared by:



For Mitra S. K. Private Limited

A.K. Pats

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