

**STACK EMISSION REPORT OF FUME TREATMENT PLANT
FOR THE MONTH NOVEMBER 2023**

LOCATION	DATE OF TEST	STACK DISCHARGE VOLUME Nm ³ / hr	GASEOUS FLUORIDE mg/ Nm ³	PARTICULATE FLUORIDE mg/ Nm ³	TOTAL FLUORIDE mg/ Nm ³	TOTAL PARTICULATE mg/ Nm ³
FTP-1	01.11.2023	743111	0.75	0.21	0.96	27.69
	21.11.2023	743988	1.40	0.45	1.85	20.84
FTP-2	03.11.2023	772278	0.41	0.39	0.80	19.34
	21.11.2023	763886	1.42	0.61	2.03	26.52
FTP-3	01.11.2023	740672	1.40	0.33	1.73	26.94
	22.11.2023	749864	1.15	0.35	1.50	30.91
FTP-4	04.11.2023	752905	1.24	0.20	1.44	13.70
	22.11.2023	734790	1.31	0.40	1.71	26.75
FTP-5	02.11.2023	765646	0.75	0.45	1.20	26.37
	23.11.2023	751668	1.23	0.59	1.82	27.79
FTP-6	04.11.2023	733710	0.41	0.36	0.77	17.43
	23.11.2023	739407	1.54	0.39	1.93	26.65
FTP-7	03.11.2023	907581	0.54	0.30	0.84	24.41
	24.11.2023	898891	1.23	0.59	1.82	33.03
FTP-8	02.11.2023	903133	0.75	0.21	0.96	27.53
	24.11.2023	929769	1.54	0.41	1.95	29.43

NOTE:

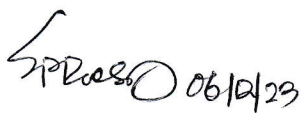
- Total Fluoride emission 0.174 Kg/ Ton of Aluminum produced, against total hot metal Production 37980 MT.
- Orissa State Pollution Control Board Norm :**
Total Fluoride emission: 0.300 Kg / Ton of Aluminum produced
Total particulate: 100 mg/Nm³.
Stack discharge volume: 9,93,600 Nm³/hr


 Authorised Signatory
Premnanda Behera
 Asst. Manager (Laboratory)
 NALCO, Smelter Plant, Angul

**STACK EMISSION REPORT OF BAKE OVEN PLANT
FOR THE MONTH OF NOVEMBER 2023**

LOCATION	DATE OF TEST	STACK DISCHARGE VOLUME Nm ³ /hr	GASEOUS FLUORIDE mg/ Nm ³	PARTICULATE FLUORIDE mg/ Nm ³	TOTAL FLUORIDE mg/ Nm ³	TOTAL PARTICULATE MATTER mg/ Nm ³
BO-I	06.11.2023	159324	0.61	0.18	0.79	30.45
	25.11.2023	159951	2.17	0.27	2.44	24.08
BO-II	07.11.2023	200281	0.77	0.16	0.93	28.02
	28.11.2023	200113	2.98	0.33	3.31	40.45

- I. Total Fluoride emission **0.018 Kg/ Ton** of Aluminium produced, against total hot metal Production 37980 MT.
- II. **Orissa State Pollution Control Board Norm:**
Total Fluoride emission: 0.1 kg/Ton of Aluminium produced
Total particulate: 50 mg/Nm³.
Stack discharge volume BO-I: 1,60,000 Nm³/hr
Stack discharge volume BO-II: 2,00,880 Nm³/hr


06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul



Qualissure Laboratory Services

361, Prantick Pally,
45/361, Bose Pukur Road,
Kolkata - 700107
Email : qualissure@gmail.com
Mob. No. : 9831287086
9830093976

DOC NO : QLS/SAMP/08-B/00

TEST REPORT

Name & Address Of the Customer : M/s. National Aluminium Company Limited Smelter Plant Division, Angul, Odisha- 759145	Report No. : QLS/MR/A/23-24/C/1321 Date : 06.12.2023 Sample No. : QLS/MR/A/23-24/1321-1330 Sample Description : Stack Flue Gas Date of Performance(s) : 02.12.2023-05.12.2023
Ref No & Date: SMLT/T&C/S20/OMC-5639/5300007582/WO/7329, Dated. 13.04.2023	

Analysis Result

Sampling Done by: S.Poddar					Sampling done as per : EPA/IS			
Sample No.	Location	Date of Sampling	Time (hrs.)	SO ₂ (mg/Nm ³)	NO _x (mg/Nm ³)	Temp. (°C)	Velocity (m/s)	Discharge Volume (Nm ³ /hr.)
1321	FTP-1	30.11.2023	14.00	40.8	29.8	98	18.99	786434
1322	FTP-2		14.55	50.3	41.8	100	18.33	755162
1323	B.O-1		09.40	186.5	77.6	92	8.09	195858
1324	B.O-2		10.20	203.8	81.4	90	8.87	215902
1325	GTC-7		12.00	57.7	31.0	100	9.69	845760
1326	GTC-8		11.08	56.2	33.1	101	10.29	894678
1327	FTP-3	01.12.2023	10.10	60.5	36.9	98	15.64	647821
1328	FTP-4		11.05	52.8	35.7	96	15.34	638813
1329	FTP-5		11.50	41.0	27.0	101	9.12	682735
1330	FTP-6		12.35	55.3	28.6	98	7.98	602175

METHOD OF TEST REFERENCE

EPA Part-2 : for Temperature, Velocity & Discharge Volume

EPA Part-6 : for Sulphur dioxide

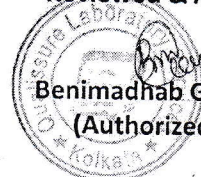
EPA Part-7 : for Oxides of Nitrogen

Report Prepared By:

Barik

for Qualissure Laboratory Services

Reviewed & Authorized By



Benimadhab Gorai, Chemist
(Authorized Signatory)

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

- The results relate only to the item(s) tested.
- This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services
- The reserved part of sample(s), except perishable sample(s), shall be retained for 30 days from the date of issue of the Test Report

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**FUGITIVE EMISSION OF FLUORIDE IN POTROOMS
FOR THE MONTH OF NOVEMBER 2023**

Location	Date of Sampling	No of Pots in operation	Fugitive emission in mg/m ³ (Average)	Average fugitive emission mg/m ³	Average fugitive emission in kg/T of Al from pot rooms (Kg/T of Al)	OSPCB NORM: Total Fugitive emission from Pot rooms (Kg/T of Al)
Pot room-A	11.11.2023 13.11.2023	118	0.48	0.676	0.148	0.40
Pot room-B	11.11.2023 13.11.2023	118	0.46			
Pot room-C	14.11.2023 20.11.2023	118	0.46			
Pot room-D	14.11.2023 20.11.2023	120	0.69			
Pot room-E	15.11.2023 17.11.2023	118	0.67			
Pot room-F	15.11.2023 17.11.2023	116	1.02			
Pot room-G	16.11.2023 19.11.2023	120	0.79			
Pot room-H	16.11.2023 19.11.2023	120	0.84			

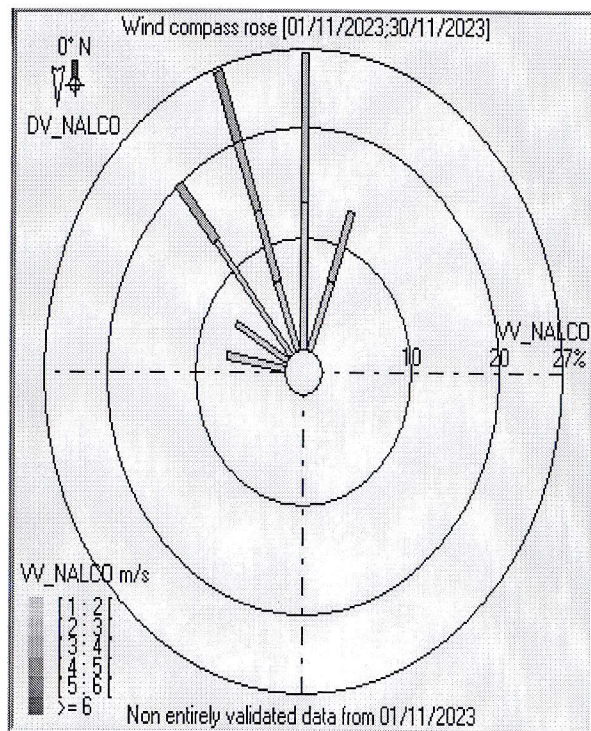

06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul

MAXIMUM & MINIMUM TEMPERATURE AND RAIN FALL**NOVEMBER-2023**

DATE	MAXIMUM TEMP. (deg.C)	MINIMUM TEMP. (deg C)	RAIN FALL (mm)
01-Nov	33.0	22.0	0.0
02-Nov	33.0	23.0	0.0
03-Nov	34.0	24.0	0.0
04-Nov	33.0	23.0	3.9
05-Nov	34.0	22.0	0.0
06-Nov	32.0	21.0	0.0
07-Nov	31.5	20.0	0.0
08-Nov	32.0	19.0	0.0
09-Nov	32.0	21.0	0.0
10-Nov	33.0	21.0	0.0
11-Nov	33.0	21.0	0.0
12-Nov	33.0	22.0	0.0
13-Nov	31.0	21.0	0.0
14-Nov	31.0	20.0	0.0
15-Nov	30.0	21.0	0.0
16-Nov	30.0	22.0	0.0
17-Nov	31.0	22.0	0.0
18-Nov	30.0	21.0	0.0
19-Nov	30.0	20.0	0.0
20-Nov	32.0	21.5	0.0
21-Nov	29.0	20.0	0.0
22-Nov	30.0	20.0	0.0
23-Nov	30.0	20.0	0.0
24-Nov	29.0	19.0	0.0
25-Nov	29.0	19.0	0.0
26-Nov	28.0	18.0	0.0
27-Nov	28.0	18.0	0.0
28-Nov	28.0	19.0	0.0
29-Nov	29.0	19.0	0.0
30-Nov	30.0	19.5	0.0
Max. Temp. for the month in Deg.C		34.0	
Min. Temp. for the month in Deg.C.		18.0	
Total rainfall (mm) -		3.9	YEAR 2023: 1412.1


 06/12/23
 Authorised Signatory
Premananda Behera
 Asst. Manager (Laboratory)
 NALCO, Smelter Plant, Angul

WINDROSE FOR THE MONTH OF NOVEMBER 2023



	<1	[1:2]	[2:3]	[3:4]	[4:5]	[5:6]	>=6	Accumulation
[350:10]	8353.3	13.3	13.3					26.7
[10:30]	73.3	6.7	6.7					13.3
[30:50]	20.0							
[50:70]	13.3							
[70:90]	6.7							
[90:110]								
[110:130]								
[130:150]								
[150:170]								
[170:190]	6.7							
[190:210]								
[210:230]								
[230:250]								
[250:270]	6.7							
[270:290]	26.7	6.7						6.7
[290:310]	46.7	6.7						6.7
[310:330]	40.0	13.3		6.7				20.0
[330:350]	33.3	6.7	6.7	6.7	6.7			26.7
Accumulation	8626.7	53.3	26.7	13.3	6.7			100 %

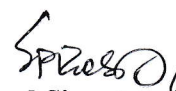

 06/12/23
 AUTHORISED SIGNATORY
Premananda Behera
 Asst. Manager (Laboratory)
 NALCO, Smelter Plant, Angul

F60G4/QC/4.5.1
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**ANALYSIS REPORT OF GROUND WATER AND SURFACE WATER
FOR THE MONTH NOVEMBER 2023**

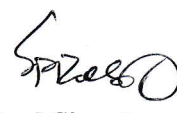
Sl. No.	Sampling place	Approx. Distance from Storm water Channel (in meter)	Fluoride mg/l (Norm 1.5)	pH (Norm 6.5-9.0)
1	Open Pond (Kulad)	200	*	*
2	Open Pond (Kulad)	100	*	*
3	Bore Well (Kulad)	100	1.19	7.0
4	Open Well Kulad)	75	1.35	7.2
5	Open Pond (Bonda)	100	1.42	7.8
6	Open well (Bonda)	100	0.49	6.5
7	Open Pond (Bonda – Rly. Culvert)	15	1.25	7.5
8	Tube Well (Bonda)	100	*	*
9	Open well (Bonda)	50	*	*
10	Open Well (Chowadhia)	10	*	*
11	Open Well (Chowadhia)	15	*	*
12	Tube Well (Chowadhia)	100	*	*
13	Open Pond (Chowadhia)	100	0.98	7.1
14	Open Pond (Banarpal)	200	0.92	6.8
15	Open Pond (Banarpal)	200	0.93	7.5

- Sample could not be collected as access to the location was restricted.


06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul

ANALYSIS REPORT OF GROUND AND SURFACE WATER
(SURROUNDING VILLAGES OF SMELTER PLANT)
FOR THE MONTH OF NOVEMBER 2023

Sl. No.	Sampling place	Direction with respect to Smelter Plant	Approx. Distance from Smelter Plant Km	Fluoride mg/l (Norm 1.5)	pH (Norm 6.5-9.0)
1	TURANGA TUBEWELL	NW	4	0.31	7.0
2	KURUDOL OPEN WELL	NW	5	0.48	7.1
3	BALARAM PRASAD TUBE WELL	N	5	0.22	6.9
4	GOTAMARA OPEN WELL	NE	6	0.26	6.7
5	TULASIPAL OPEN WELL	SE	4	1.17	6.9
6	LANGULIABERA OPEN WELL	S	3	1.10	6.9
7	GOPINATHPUR OPEN WELL	SW	2.5	0.63	7.3
8	ANKULA TUBE WELL	W	2	0.65	6.7


06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul

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**ANALYSIS OF TREATED EFFLUENT FROM SEWAGE TREATMENT PLANT
(INSIDE TOWNSHIP)
FOR THE MONTH OF NOVEMBER 2023**

Sample Collected on: 13.11.2023

Sl. No	Parameters	Units	Norms (max)	Analysis
1	pH	-	6.5 to 9.0	7.2
2	Suspended solids	mg/l	100	02
3	BOD 3 days at 27 deg. C	mg/l	30	02
4	Fecal Coliform (Sample collected on 30.11.2023)	MPN /100ml	1000	97

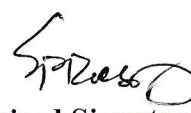
 06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul

F60G7/QC/4.5.1
Issue No 001.Rev 00
Dt.02.07.2015

**ANALYSIS OF TREATED EFFLUENT FROM SEWAGE TREATMENT PLANT
(NEAR CISF BARRACK)
FOR THE MONTH OF NOVEMBER 2023**

Sample Collected on: 13.11.2023

Sl. No	Parameters	Units	Norms (max)	Analysis
1	pH	-	6.5 to 9.0	7.1
2	Suspended solids	mg/l	100	04
3	BOD 3 days at 27 deg. C	mg/l	30	04
4	Fecal Coliform (Sample collected on 30.11.2023)	MPN/100ml	1000	93


06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul

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BORE WELL ANALYSIS REPORT

FOR THE MONTH OF NOVEMBER 2023

Sl. No.	Location	Date of Collection and analysis.	pH (Norm 6.5-9.0)	Fluoride as F mg/l (Norm 1.5)	Cyanide as CN mg/l (Norm 0.2)
1	Bore well -3 (Hazardous waste land fill)	01.11.2023	7.1	1.23	ND
2	Bore well -4 (Hazardous waste land fill)	01.11.2023	7.5	1.03	ND
3	Bore well -5 (Hazardous waste land fill)	01.11.2023	7.2	1.32	ND

Note:

1) ND – Not detectable.

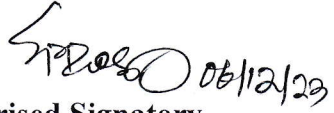

06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul

FORAGE FLUORIDE MONITORING (GRASS SAMPLES) REPORTS AROUND SMLETER PLANT

FOR THE MONTH OF NOVEMBER 2023

SL. No	Location	Direction w.r.t Smelter Plant	Date of collection of sample	Fluoride content (dry basis) in ppm for the month of NOV' 23	Fluoride content (dry basis) in ppm for the month of OCT' 23	Average of two consecutive months in ppm
1	Bonda	South-East	06.11.2023	38.1	38	38.05
2	Tulsipal	South-East	11.11.2023	39.5	38.2	38.85
3	Languliabeda	South-West	11.11.2023	39.5	39	39.25
4	Banarpal	East	08.11.2023	38.3	39.6	38.95
5	Turang	West	04.11.2023	36.75	37.75	37.25
6	Balaramprasad	North	07.11.2023	37.5	36.2	36.85

Norm- For single month - 80ppm
Average of two consecutive months - 60 ppm
Annual average - 40 ppm


06/12/23
Authorised Signatory
Premananda Behera
Asst. Manager (Laboratory)
NALCO, Smelter Plant, Angul