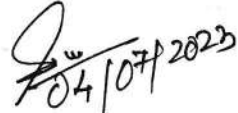


**STACK EMISSION REPORT OF FUME TREATMENT PLANT
FOR THE MONTH JUNE 2023**

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	01.06.2023	728841	0.64	0.54	1.18	28.30
	21.06.2023	731773	1.39	0.53	1.92	27.99
FTP-2	01.06.2023	777946	1.14	0.46	1.60	27.87
	21.06.2023	769742	1.55	0.53	2.08	26.37
FTP-3	05.06.2023	731916	0.81	0.32	1.13	35.37
	24.06.2023	731100	1.72	0.45	2.17	36.99
FTP-4	02.06.2023	730248	0.93	0.17	1.10	26.28
	22.06.2023	739693	0.72	0.37	1.09	31.66
FTP-5	05.06.2023	787890	0.59	0.55	1.14	38.04
	22.06.2023	742924	2.23	0.56	2.79	39.63
FTP-6	02.06.2023	749775	0.96	0.35	1.31	32.98
	23.06.2023	746270	1.20	0.93	2.13	33.38
FTP-7	03.06.2023	897946	0.91	0.63	1.54	40.34
	23.06.2023	896597	1.63	0.89	2.52	37.19
FTP-8	03.06.2023	918585	0.68	0.18	0.86	64.90
	24.06.2023	955071	0.65	0.49	1.14	23.79

NOTE:

1. Total Fluoride emission 0.187 Kg/ Ton of Aluminum produced, against total hot metal Production 38848 MT.
2. **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


 04/07/2023
 Authorised Signatory
S. K. DHAL
 Dy. Manager (LAB)
 NALCO, SMET

**STACK EMISSION REPORT OF BAKE OVEN PLANT
FOR THE MONTH OF JUNE 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	06.06.2023	159836	1.23	0.18	1.41	27.31
	28.06.2023	159002	3.42	0.23	3.65	45.00
BO-II	07.06.2023	200289	0.95	0.18	1.13	33.65
	27.06.2023	200679	2.57	0.20	2.77	31.45

- I. Total Fluoride emission **0.018 Kg/ Ton** of Aluminium produced, against total hot metal Production 38848 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


04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, 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 :	Report No. : QLS/MR/A/23-24/C/514
M/s. National Aluminium Company Limited	Date : 01.07.2023
Smelter Plant Division,	Sample No. : QLS/MR/A/23-24/514-523
Angul,	Sample Description : Stack Flue Gas
Odisha- 759145	Date of Performance(s) : 30.06.2023-01.07.2023
Ref No & Date: SMLT/T&C/S20/OMC-5639/5300007582/WO/7329, Dated. 13.04.2023	

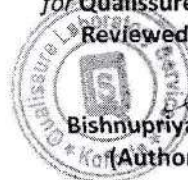
Analysis Result

Sampling Done by: S.Poddar					Sampling done as per : EPA/IS			
Sample No.	Location	Date of Sampling	Time	SO ₂ (mg/Nm ³)	NO _x (mg/Nm ³)	Temp. (°C)	Velocity (m/s)	Discharge Volume (Nm ³ /hr.)
514	FTP-3	28.06.2023	13:20	41.2	28.3	101	15.27	625748
515	FTP-1	28.06.2023	10:00	36.6	19.9	103	18.46	752346
516	FTP-2	28.06.2023	10:55	37.1	27.2	101	17.03	697833
517	GTC-8	27.06.2023	14:05	24.5	26.7	78	9.92	867997
518	GTC-7	27.06.2023	11:58	43.5	22.3	96	10.03	882568
519	FTP-6	27.06.2023	15:02	28.4	23.4	100	8.78	657182
520	FTP-5	27.06.2023	15:55	36.0	24.0	99	8.41	631239
521	BO-1	27.06.2023	9:45	222.8	77.3	90	9.63	233803
522	BO-2	27.06.2023	14:30	221.9	80.5	88	10.07	245790
523	FTP-4	28.06.2023	14:10	24.7	25.1	98	15.67	647280
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:

for Qualissure Laboratory Services

Reviewed & Authorized By



Bishnupriya Banerjee, 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

F60G10/QC/4.5.1
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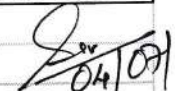
FUGITIVE EMISSION OF FLUORIDE IN POTROOMS
FOR THE MONTH OF JUNE 2023

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	10.06.2023 12.06.2023	119	0.54	0.776	0.166	0.40
Pot room-B	10.06.2023 12.06.2023	118	0.84			
Pot room-C	13.06.2023 15.06.2023	120	0.88			
Pot room-D	13.06.2023 15.06.2023	120	0.60			
Pot room-E	14.06.2023 16.06.2023	120	0.55			
Pot room-F	14.06.2023 16.06.2023	120	1.14			
Pot room-G	17.06.2023 19.06.2023	120	0.93			
Pot room-H	17.06.2023 19.06.2023	120	0.73			


04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

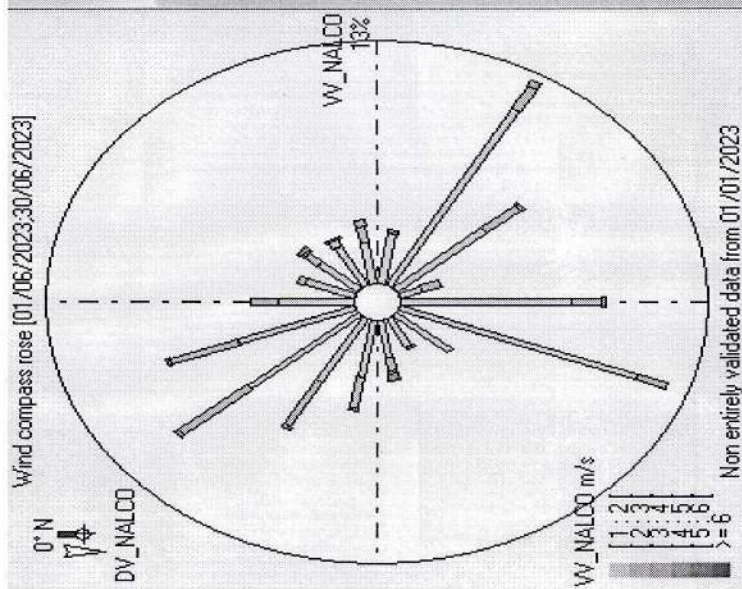
MAXIMUM & MINIMUM TEMPERATURE AND RAIN FALL**JUNE-2023**

DATE	MAXIMUM TEMP. (deg.C)	MINIMUM TEMP. (deg C)	RAIN FALL (mm)
01-Jun	40.0	28.0	0.0
02-Jun	42.0	28.0	0.0
03-Jun	42.0	28.0	0.0
04-Jun	41.0	24.0	71.2
05-Jun	38.0	28.0	0.0
06-Jun	40.0	28.0	0.0
07-Jun	42.0	28.0	0.0
08-Jun	43.0	29.0	0.0
09-Jun	43.0	30.0	0.0
10-Jun	43.0	28.0	0.0
11-Jun	43.0	28.0	0.0
12-Jun	44.5	29.0	0.0
13-Jun	41.0	31.0	0.0
14-Jun	41.0	29.0	0.0
15-Jun	43.0	32.0	0.0
16-Jun	45.5	29.5	0.0
17-Jun	45.0	29.0	0.0
18-Jun	45.0	24.0	24.6
19-Jun	40.0	26.0	0.0
20-Jun	40.0	26.0	0.0
21-Jun	39.0	27.0	0.0
22-Jun	37.0	27.0	12.4
23-Jun	35.0	26.0	10.3
24-Jun	34.0	24.0	42.0
25-Jun	34.0	24.0	152.0
26-Jun	29.0	25.0	18.8
27-Jun	31.0	26.0	0.0
28-Jun	34.0	27.0	0.0
29-Jun	35.0	27.0	0.0
30-Jun	37.0	27.0	0.0
Max. Temp. for the month in Deg.C		45.5	
Min. Temp. for the month in Deg.C.		24.0	
Total rainfall (mm) -		331.3	YEAR 2023: 483.3


 04/07/2023
 Authorised Signatory

S. K. DHAL
 Dy. Manager (LAB)
 NALCO, SMELTER, ANGUL

WINDROSE FOR THE MONTH OF JUNE 2023



	<1	[1:2[	[2:3[	[3:4[	[4:5[	[5:6[	>=6	Accumulation
[350:10[	126.4	32	1.2					4.4
[10:30[	11.2	2.2	0.3					2.6
[30:50[	7.8	2.2	0.7	0.2	0.2			3.2
[50:70[	17.2	2.4	0.3			0.2		2.9
[70:90[	18.4	2.2	0.9	0.3				3.4
[90:110[	24.5	2.7		0.2				2.9
[110:130[	30.6	10.9	1.4	0.3				12.6
[130:150[	21.3	4.9	1.9	0.2				7.0
[150:170[	10.4	1.0	0.9					1.9
[170:190[	10.2	7.3	1.2	0.2				8.7
[190:210[	12.2	10.7	1.4					12.1
[210:230[	11.9	3.1						3.1
[230:250[	11.1	1.7	0.2					1.9
[250:270[	7.8	2.0	0.7	0.2	0.3			3.2
[270:290[	10.4	3.1	1.7	0.2				4.9
[290:310[	6.6	3.9	2.7	0.2				6.8
[310:330[	7.0	6.1	3.7	0.2				10.0
[330:350[	9.2	5.3	3.1	0.2				8.5
Accumulation	354.1	75.0	22.1	2.2	0.5	0.2		100 %

S. K. DHAL
 24/07/2023
 AUTHORISED SIGNATORY

S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

F60G4/QC/4.5.1
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**ANALYSIS REPORT OF GROUND WATER AND SURFACE WATER
FOR THE MONTH JUNE 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	1.05	7.5
4	Open Well Kulad)	75	1.38	7.6
5	Open Pond (Bonda)	100	1.42	8.7
6	Open well (Bonda)	100	0.92	7.4
7	Open Pond (Bonda – Rly. Culvert)	15	*	*
8	Tube Well (Bonda)	100	1.11	7.2
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	1.33	7.4
14	Open Pond (Banarpal)	200	1.25	7.0
15	Open Pond (Banarpal)	200	1.36	7.7

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


04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, A.P.

ANALYSIS REPORT OF GROUND AND SURFACE WATER
(SURROUNDING VILLAGES OF SMELTER PLANT)
FOR THE MONTH OF **JUNE 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	0.54	7.2
2	KURUDOL OPEN WELL	NW	5	0.78	7.4
3	BALARAM PRASAD TUBE WELL	N	5	1.04	7.4
4	GOTAMARA OPEN WELL	NE	6	1.10	7.1
5	TULASIPAL OPEN WELL	SE	4	0.95	7.5
6	LANGULIABERA OPEN WELL	S	3	1.38	7.3
7	GOPINATHPUR OPEN WELL	SW	2.5	1.44	7.6
8	ANKULA TUBE WELL	W	2	1.39	7.4

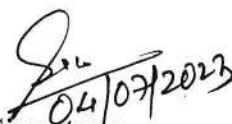

04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

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

Sample Collected on: 13.06.2023

Sl. No	Parameters	Units	Norms (max)	Analysis
1	pH	-	6.5 to 9.0	6.9
2	Suspended solids	mg/l	100	10
3	BOD 3 days at 27 deg. C	mg/l	30	06
4	Fecal Coliform (Sample collected on 22.06.2023)	MPN /100ml	1000	97


04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

F60G7/QC/4.5.1
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Dt.02.07.2015

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

Sample Collected on: 13.06.2023

Sl. No	Parameters	Units	Norms (max)	Analysis
1	pH	-	6.5 to 9.0	7.4
2	Suspended solids	mg/l	100	44
3	BOD 3 days at 27 deg. C	mg/l	30	07
4	Fecal Coliform (Sample collected on 22.06.2023)	MPN/100ml	1000	89


04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

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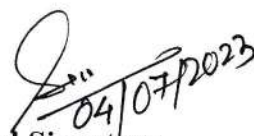
BORE WELL ANALYSIS REPORT

FOR THE MONTH OF JUNE 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)	27.06.2023	7.5	1.48	ND
2	Bore well -4 (Hazardous waste land fill)	27.06.2023	7.8	1.45	ND
3	Bore well -5 (Hazardous waste land fill)	27.06.2023	7.6	1.43	ND

Note:

- 1) ND – Not detectable.

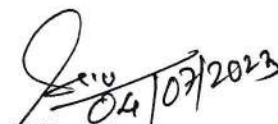

04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

FORAGE FLUORIDE MONITORING (GRASS SAMPLES) REPORTS AROUND SMLETER PLANT

FOR THE MONTH OF JUNE 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 JUNE' 23	Fluoride content (dry basis) in ppm for the month of MAY' 23	Average of two consecutive months in ppm
1	Bonda	South-East	18.06.2023	38.58	38.6	38.59
2	Tulsipal	South-East	18.06.2023	39.6	37.5	38.55
3	Languliabeda	South-West	18.06.2023	39.1	35.5	37.3
4	Banarpal	East	03.06.2023	36	38	37
5	Turang	West	02.06.2023	37.5	38.2	37.85
6	Balaramprasad	North	03.06.2023	38.2	38.9	38.55

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


04/07/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL