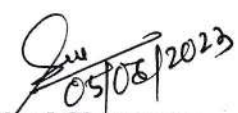


**STACK EMISSION REPORT OF FUME TREATMENT PLANT
FOR THE MONTH MAY 2023**

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	03.05.2023	727853	1.62	0.40	2.02	27.14
	23.05.2023	731761	1.38	0.60	1.98	31.37
FTP-2	02.05.2023	772318	0.81	0.42	1.23	19.55
	23.05.2023	783775	0.80	0.37	1.17	25.89
FTP-3	02.05.2023	746887	4.15	0.32	4.47	19.05
	24.05.2023	736384	2.48	0.36	2.84	31.48
FTP-4	03.05.2023	735007	1.31	0.36	1.67	28.92
	25.05.2023	742077	1.20	0.31	1.51	28.24
FTP-5	05.05.2023	792359	0.53	0.33	0.86	86.42
	26.05.2023	783608	0.93	0.36	1.29	37.67
FTP-6	04.05.2023	729626	1.39	0.56	1.95	39.35
	25.05.2023	760782	0.43	0.50	0.93	37.58
FTP-7	04.05.2023	876801	1.10	0.55	1.65	40.99
	26.05.2023	864092	0.55	0.60	1.15	38.25
FTP-8	05.05.2023	908204	0.78	2.25	3.03	51.60
	24.05.2023	951770	0.56	0.22	0.78	32.57

NOTE:

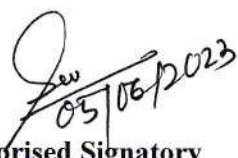
1. Total Fluoride emission 0.206 Kg/ Ton of Aluminum produced, against total hot metal Production 40401 MT.
2. **Orissa State Pollution Control Board Norm :**
Total Fluoride emission: 0.300 Kg / Ton of Aluminum produced
Total particulate: 100 mg/Nm³.
Stack discharge volume: 9,93,600 Nm³/hr


 05/06/2023
 Authorised Signatory
S. K. DHAL
 Dy. Manager (LAB)
 NALCO, SMELTER, ANGUL

**STACK EMISSION REPORT OF BAKE OVEN PLANT
FOR THE MONTH OF MAY 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	06.05.2023	157350	1.29	0.20	1.49	22.13
	27.05.2023	158109	0.93	0.10	1.03	29.5
BO-II	08.05.2023	200367	1.09	0.12	1.21	28.04
	27.05.2023	200402	0.93	0.09	1.02	41.10

- I. Total Fluoride emission **0.010 Kg/ Ton** of Aluminium produced, against total hot metal Production 40401 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


03/06/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL



Qualissure Laboratory Services

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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/271 Date : 27.05.2023 Sample No. : QLS/MR/A/23-24/271-280 Sample Description : Stack Flue Gas Date of Performance(s) : 22.05.2023-27.05.2023
Ref No & Date: SMLT/T&C/S02/OMC-5076/5300004349/WO/5802, Dated. 15.10.2019	

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.)
271	GTC-7	17.05.2023	11.50	36.8	24.9	101	9.90	859379
272	GTC-8	17.05.2023	13.20	30.7	21.3	100	10.22	718499
273	BO-1	17.05.2023	15.10	204.4	86.8	102	8.69	203027
274	BO-2	17.05.2023	16.00	217.0	82.1	101	9.57	225446
275	FTP-5	18.05.2023	10.03	28.5	23.6	102	8.47	630606
276	FTP-6	18.05.2023	10.50	35.6	20.4	101	8.37	624777
277	FTP-4	18.05.2023	11.48	33.7	20.9	96	16.72	694275
278	FTP-3	18.05.2023	13.50	36.8	24.0	102	15.79	645245
279	FTP-2	18.05.2023	15.30	35.7	25.4	99	17.74	729710
280	FTP-1	20.05.2023	16.15	30.9	23.3	92	18.79	787702
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

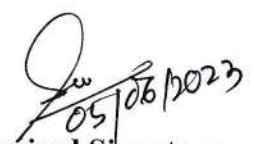
Benimadhab Gorai, Chemist
(Authorized Signatory)

-----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

FUGITIVE EMISSION OF FLUORIDE IN POTROOMS FOR THE MONTH OF MAY 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	09.05.2023 11.05.2023	119	1.14	1.036	0.22	0.40
Pot room-B	09.05.2023 11.05.2023	119	1.18			
Pot room-C	10.05.2023 12.05.2023	120	0.80			
Pot room-D	10.05.2023 12.05.2023	120	1.08			
Pot room-E	13.05.2023 15.05.2023	119	0.93			
Pot room-F	13.05.2023 15.05.2023	119	1.00			
Pot room-G	16.05.2023 18.05.2023	120	1.20			
Pot room-H	16.05.2023 18.05.2023	120	0.96			


 05/06/2023
 Authorised Signatory
S. K. DHAL
 Dy. Manager (LAB)
 NALCO, SMELTER

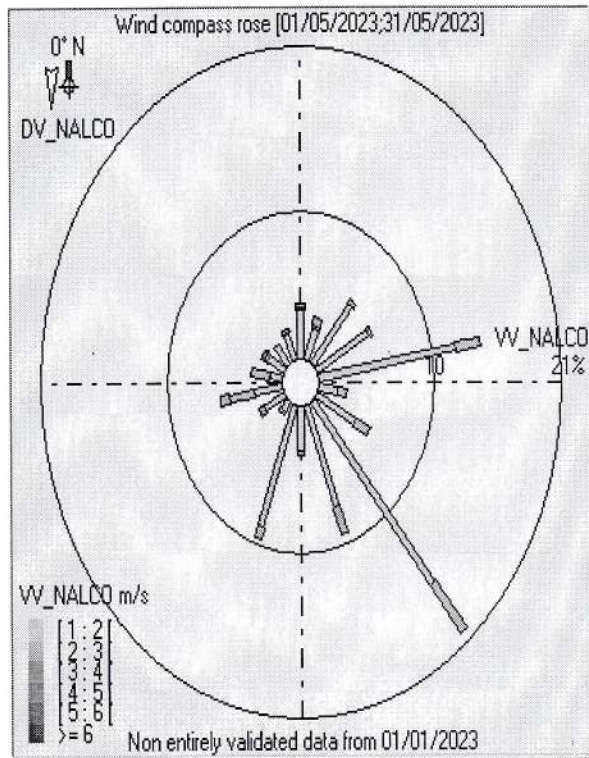
MAXIMUM & MINIMUM TEMPERATURE AND RAIN FALL**MAY-2023**

DATE	MAXIMUM TEMP. (deg.C)	MINIMUM TEMP. (deg C)	RAIN FALL (mm)
01-May	37.0	22.0	0.0
02-May	32.0	26.0	0.0
03-May	35.0	24.0	0.0
04-May	36.0	25.0	0.0
05-May	37.0	26.0	0.0
06-May	40.0	26.0	0.0
07-May	41.0	26.0	0.0
08-May	42.0	26.0	0.0
09-May	41.5	27.0	0.3
10-May	42.0	27.0	0.0
11-May	41.5	27.0	0.0
12-May	41.0	27.0	0.0
13-May	42.0	27.0	0.0
14-May	42.0	27.0	0.0
15-May	42.5	28.0	0.0
16-May	42.0	26.0	0.0
17-May	43.0	27.0	0.0
18-May	41.0	24.0	26.0
19-May	41.0	24.0	2.2
20-May	40.0	25.0	0.0
21-May	40.0	25.0	0.0
22-May	42.0	27.5	0.0
23-May	42.0	29.0	0.0
24-May	43.0	29.0	0.0
25-May	42.0	27.0	0.0
26-May	38.0	26.0	3.4
27-May	40.0	24.0	0.0
28-May	40.0	24.0	0.0
29-May	41.0	23.0	28.0
30-May	40.0	26.0	0.0
31-May	41.0	28.0	0.0
Max. Temp. for the month in Deg.C		43.0	
Min. Temp. for the month in Deg.C.		22.0	
Total rainfall (mm) -		59.9	YEAR 2023: 152.0


 05/06/2023
 Authorised Signatory

S. K. DHAL
 Dy. Manager (LAB)
 NALCO SINGUR

AIR LABORATORY
नालको **NALCO**
 WINDROSE FOR THE MONTH OF MAY 2023



	< 1	[1 : 2 [	[2 : 3 [	[3 : 4 [	[4 : 5 [	[5 : 6 [	>= 6	Accumulation
[350 : 10 [	321.6	3.3		0.3	0.3			3.8
[10 : 30 [	17.0	2.2	0.3	0.5				3.0
[30 : 50 [	23.0	5.2	0.3					5.5
[50 : 70 [	27.7	5.2	0.3					5.5
[70 : 90 [	25.5	12.1	2.2					14.2
[90 : 110 [	19.2	1.6	0.8					2.5
[110 : 130 [	13.4	3.8	1.4					5.2
[130 : 150 [	10.1	16.2	4.1					20.3
[150 : 170 [	11.2	7.4	1.9					9.3
[170 : 190 [	9.9	3.0	0.3					3.3
[190 : 210 [	11.8	8.8	0.8					9.6
[210 : 230 [	10.4	0.8	0.3					1.1
[230 : 250 [	7.9	1.9		0.5				2.5
[250 : 270 [	10.4	2.5	2.2	0.8				5.5
[270 : 290 [	11.2	1.1	1.6					2.7
[290 : 310 [	7.9	1.6	0.3		0.3			2.2
[310 : 330 [	3.8	1.6						1.6
[330 : 350 [	5.8	1.9		0.3				2.2
Accumulation	547.9	80.3	16.7	2.5	0.5			100 %


 05/06/2023
 AUTHORISED SIGNATORY
S. K. DHAL
 Dy. Manager (LAB)
 NALCO, SMELTER, ANGUL

F60G4/QC/4.5.1
Issue No 001.Rev 00
Dt.04.07.2013

**ANALYSIS REPORT OF GROUND WATER AND SURFACE WATER
FOR THE MONTH MAY 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	1.29	7.1
4	Open Well Kulad)	75	1.32	7.4
5	Open Pond (Bonda)	100	*	*
6	Open well (Bonda)	100	1.17	7.1
7	Open Pond (Bonda – Rly. Culvert)	15	1.38	7.9
8	Tube Well (Bonda)	100	0.45	7.5
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	1.26	7.3
14	Open Pond (Banarpal)	200	1.24	7.3
15	Open Pond (Banarpal)	200	1.26	8.2

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


05/06/2023
Authorized Signatory
S. K. DIAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

ANALYSIS REPORT OF GROUND AND SURFACE WATER
(SURROUNDING VILLAGES OF SMELTER PLANT)
FOR THE MONTH OF MAY 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	0.80	7.1
2	KURUDOL OPEN WELL	NW	5	1.38	7.3
3	BALARAM PRASAD TUBE WELL	N	5	1.10	7.2
4	GOTAMARA OPEN WELL	NE	6	0.71	7.1
5	TULASIPAL OPEN WELL	SE	4	1.42	7.2
6	LANGULIABERA OPEN WELL	S	3	0.99	7.1
7	GOPINATHPUR OPEN WELL	SW	2.5	0.60	7.0
8	ANKULA TUBE WELL	W	2	0.85	7.1

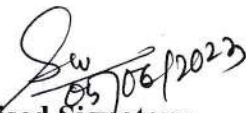

05/06/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

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

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

Sample Collected on : 12.05.2023

Sl. No	Parameters	Units	Norms (max)	Analysis
1	pH	-	6.5 to 9.0	7.0
2	Suspended solids	mg/l	100	14
3	BOD 3 days at 27 deg. C	mg/l	30	02
4	Fecal Coliform (Sample collected on 15.05.2023)	MPN /100ml	1000	92

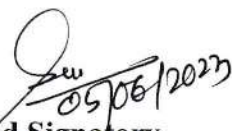

Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

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 MAY 2023**

Sample Collected on: 12.05.2023

Sl. No	Parameters	Units	Norms (max)	Analysis
1	pH	-	6.5 to 9.0	6.8
2	Suspended solids	mg/l	100	38
3	BOD 3 days at 27 deg. C	mg/l	30	08
4	Fecal Coliform (Sample collected on 15.05.2023)	MPN/100ml	1000	88


05/06/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

BORE WELL ANALYSIS REPORT

FOR THE MONTH OF MAY 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)	25.05.2023	7.2	1.43	ND
2	Bore well -4 (Hazardous waste land fill)	25.05.2023	7.5	1.22	ND
3	Bore well -5 (Hazardous waste land fill)	25.05.2023	7.0	1.24	ND

Note:

- 1) ND – Not detectable.

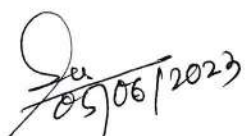

05/06/2023
Authorised Signatory
S. K. DHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL

FORAGE FLUORIDE MONITORING (GRASS SAMPLES) REPORTS AROUND SMLETER PLANT

FOR THE MONTH OF MAY 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 MAY' 23	Fluoride content (dry basis) in ppm for the month of APRIL' 23	Average of two consecutive months in ppm
1	Bonda	South-East	11.05.2023	38.6	40	39.3
2	Tulsipal	South-East	10.05.2023	37.5	38.9	38.2
3	Languliabeda	South-West	10.05.2023	35.5	39.2	37.35
4	Banarpal	East	09.05.2023	38	38.4	38.2
5	Turang	West	02.05.2023	38.2	39.3	38.75
6	Balaramprasad	North	08.05.2023	38.9	39.5	39.2

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


Authorised Signatory
S. K. BHAL
Dy. Manager (LAB)
NALCO, SMELTER, ANGUL