

NUMALIGARH REFINERY LIMITED								
	QUARTERLY PERFORMANCE WITH RESPECT TO ENVIRONMENTAL ASPECTS							
	DURING THE QUARTER-III, 2016-17 (Oct to Dec ,2016)							
	1.0 Liquid Effluent							
	1.1 Quantity							
				OCT'16	DEC'16	DEC'16	Cummulative	Cumm. for the year
							QIII, 2016-17	2016-17
Quantity of Effluent Discharged, M3				0	0	0	0.00	0
Effluent Discharged, M3/1000 MT of Crude Prod				0	0	0	0.00	0
	1.0 Liquid Effluent							
	1.2 Quality							
	Liquid Effluent Pollutant Levels							
S. No.			CONC. in mg/lit. except pH			CPCB	Actual	CPCB STD.
	PARAMETERS	NO. OF	MAX.	MIN.	AVG.	STD.	kg/1000 MT of crude	
		OBS.				(mg/lit)	processed	
S. No. 1-8 analysed once in a day.								
1	pH	92	8.0	6.0	6.6	6-8.5	—	—
2	Oil & Grease	92	5	2.1	2.90	5.0	2.00	2.0
3	BOD3	92	12.0	9.0	8.70	15.0	5.96	6.0
4	COD	92	119.0	32.0	72.4	125.0	37.60	50.0
5	TSS	92	18.0	10.0	11.5	20.0	7.88	8.0
6	Phenol	92	0.32	0.10	0.13	0.35	0.09	0.14
7	Sulphides	92	<0.1	<0.1	<0.1	0.5	0.07	0.20
8	CN	92	<0.02	<0.02	<0.02	0.2	0.01	0.08
S. No. 9-21 analysed once in a month.								
9	Ammonia as N	3	2.05		2.01	15.0	1.63	6
10	Cr (Hexavalent)	3	Nil		0.00	0.1	0.00	0.04
11	Cr (Total)	3	0.056		0.025	2.0	0.04	0.8
12	Pb	3	0.058		0.021	0.1	0.015	0.04
13	Zn	3	0.052		0.040	5.0	0.04	2
14	Ni	3	0.06		0.030	1.0	0.04	0.4
15	Cu	3	0.041		0.02	1.0	0.040	0.4
20	Benzene	3	0.038		0.0270	0.1	0.0003	0.04
21	Benzo (a)- Pyrene	3	0.028		0.003	0.2	0.0004	0.08
15	Hg	3	BDL		BDL	0.01	0.00	0.004
19	V	3	BDL		BDL	0.2	0.00	0.8
10	TKN	3	21.1		12.2	40.0	4.80	16
11	P	3	6.4		1.60	3.0	1.05	1.2

* All the parameters are found to be within limit. Parameters from 9 to 21 are monitored once in a month as per CPCB norms

* Limiting concentration of effluent is as per MoEF new notification on standard vide GSR-186 (E) dated 18th March'08.

NUMALIGARH REFINERY LIMITED						
QUARTERLY PERFORMANCE WITH RESPECT TO ENVIRONMENTAL ASPECTS						
DURING QUARTER III -2016-17(OCT to DEC'16),						
Ambient Air Quality Data						
STATION	PARAMETER	STD	Unit	OBSERVATIONS		
		NAAQS-2009		MAX	MIN	AVG.
REFINERY (WATCH TOWER NO. 6)	SO2	80 (24 hr avg.)	µg/m3	14.8	5.9	8.8
	NO2	80 (24 hr avg.)	µg/m3	43.5	22.6	34.4
	O3	100 (8 hr avg.)	µg/m3	36.5	19.6	26.4
	CO	2.0 (8 hr.avg.)	µg/m3	1180	430	780
	NH3	400 (24 hr.avg.)	µg/m3	28.7	11.3	17.50
	PM 10	100 (24 hr.avg.)	µg/m3	86.0	60.0	75.0
	PM 2.5	60 (24 hr.avg.)	µg/m3	50.0	32.0	40.6
	Benzene	05 (Annual)	µg/m3	3.88	2.08	2.28
	BaP	01 (Annual)	ng/m3	0.74	0.40	0.68
	Pb	1.0 (24 hr.avg.)	µg/m3	0.08	0.02	0.30
	As	06 (Annual)	ng/m3	3.02	1.00	1.70
	Ni	20 (Annual)	ng/m3	14.20	4.00	8.77
ECO-PARK IN NRL TOWNSHIP	SO2	80 (24 hr avg.)	µg/m3	7.60	4.30	5.6
	NO2	80 (24 hr avg.)	µg/m3	32.70	18.50	25.4
	O3	100 (8 hr avg.)	µg/m3	28.6	19.60	22.5
	CO	2.0 (8 hr.avg.)	µg/m3	680	230	420
	NH3	400 (24 hr.avg.)	µg/m3	14.5	10.00	11.2
	PM 10	100 (24 hr.avg.)	µg/m3	71.0	38.0	60.3
	PM 2.5	60 (24 hr.avg.)	µg/m3	42.0	19.0	32.1
	Benzene	05 (Annual)	µg/m3	2.18	2.08	2.10
	BaP	1.0 (Annual)	ng/m3	0.63	0.40	0.42
	Pb	1.0 (24 hr.avg.)	µg/m3	0.08	0.02	0.02
	As	6.0 (Annual)	ng/m3	1.18	1.00	1.10
	Ni	20 (Annual)	ng/m3	8.54	4.00	6.90

RO WATER INTAKE	SO2	80 (24 hr avg.)	µg/m3	6.7	4.1	5.4
	NO2	80 (24 hr avg.)	µg/m3	30.2	15.2	22.0
	O3	100 (8 hr avg.)	µg/m3	27.4	19.6	20.9
	CO	2.0 (8 hr.avg.)	µg/m3	720	220	390
	NH3	400 (24 hr.avg.)	µg/m3	21.6	10.0	11.1
	PM 10	100 (24 hr.avg.)	µg/m3	68.0	42.0	53.0
	PM 2.5	60 (24 hr.avg.)	µg/m3	36.0	21.0	28.3
	Benzene	05 (Annual)	µg/m3	2.08	2.080	2.08
	BaP	01 (Annual)	ng/m3	0.40	0.40	0.40
	Pb	1.0 (24 hr.avg.)	µg/m3	0.02	0.02	0.02
	As	06 (Annual)	ng/m3	1.00	1.00	1.00
	Ni	20 (Annual)	ng/m3	10.20	4.00	6.31
NH-39 BYPASS	SO2	80 (24 hr avg.)	µg/m3	9.8	4.7	6.5
	NO2	80 (24 hr avg.)	µg/m3	40.2	22.5	29.8
	O3	100 (8 hr avg.)	µg/m3	32.4	19.6	23.7
	CO	2.0 (8 hr.avg.)	µg/m3	950	430	680
	NH3	400 (24 hr.avg.)	µg/m3	28.0	10.0	16.2
	PM 10	100 (24 hr.avg.)	µg/m3	82.0	42.0	67.0
	PM 2.5	60 (24 hr.avg.)	µg/m3	44.0	23.0	35.3
	Benzene	05 (Annual)	µg/m3	2.69	2.08	2.20
	BaP	1	ng/m3	0.84	0.40	0.44
	Pb	1.0 (24 hr.avg.)	µg/m3	0.04	0.02	0.021
	As	6	ng/m3	2.00	1.00	1.20
	Ni	20 (Annual)	ng/m3	10.20	4.00	7.00
	SO2	80 (24 hr avg.)	µg/m3	5.50	4.00	4.70
	NO2	80 (24 hr avg.)	µg/m3	24.7	11.5	18.6
	O3	100 (8 hr avg.)	µg/m3	23.5	16.00	19.7
	CO	2.0 (8 hr.avg.)	µg/m3	320	160	240.00

KAZIRANGA WILDLIFE SANCTUARY AT AGARTOLI	NH ₃	400 (24 hr.avg.)	µg/m ³	11.20	10.00	10.20
	PM 10	100 (24 hr.avg.)	µg/m ³	54.0	27.0	40.6
	PM 2.5	60 (24 hr.avg.)	µg/m ³	28.0	13.0	20.7
	Benzene	05 (Annual)	µg/m ³	2.08	2.08	2.08
	BaP	1.0	ng/m ³	0.40	0.40	0.40
	Pb	1.0 (24 hr.avg.)	µg/m ³	0.02	0.02	0.02
	As	6	ng/m ³	1.00	1.00	1.00
	Ni	20 (Annual)	ng/m ³	4	4	4

BDL:Below Detection Level, All the parameters are found to be within limit

<u>QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT.</u>						
<u>DURING QUARTER III,2016-17 (OCT-DEC'16)</u>						
<u>Online Stack Analyser data</u>						
UNIT	FURNACE STACK	PARAMETER	OBSERVED VALUE		Limiting Concentration in mg/Nm ³	Remarks Limit conc. calculated using fuel type& quan. used during the period
			CONC. (In mg/Nm ³)			
			MAX.	MIN.		
CDU/VDU	FF-01/02	SO ₂	368.4	29.9	619	Stack with dual firing (FG:FO=82:18)
		NOX	328.1	5.4	384	
		CO (FF1)	51.6	3.30	167	
		CO (FF2)	31.3	10.50		
DCU	FF-01	SO ₂	135.5	12.88	408	Stack with dual firing (FG:FO=79:21)
		NOX	176.50	24.5	372	
HCU	FF-01/02	SO ₂	47.1	8.9	50	Stack with Gas firing
		NOX	274.0	7.8	350	
HCU	FF-03	SO ₂	188.8	13.20	219	Stack with dual firing (FG:FO=95:5)
		NOX	259.9	14.5	360	
H2U	FF-01	SO ₂	39.1	4.57	50	Stack with Gas firing
		NOX	164.4	7.97	350	
MS	FF-01	SO ₂	47.1	18.1	50	Stack with Gas firing
		NOX	165.8	24.20	350	
CPP HRSG		SO ₂	48.7	8.50	50	Stack with dual firing (FG:NAP=100:00)
		NOX	265.6	14.26	350	
CPP UTILITY BOILER		SO ₂	332.7	10.7	544	Stack with Dual firing (FG:FO=71:39)
		NOX	227.1	23.80	380	

* Limiting concentration of emission calculated as per MOEF new notification on standard vide GSR- 186 (E) dated 18th March, 2008. Emission level for all the stacks are found to be within limit