

ANNEXURE-III

QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT.

DURING QUARTER III(Oct-Dec'18),2018-19

Online Stack Analyser data

UNIT	FURNACE STACK	PARAMETER	OBSERVED VALUE		Limiting Concentration in mg/Nm3	Remarks Limit conc. calculated using fuel type& quan. used during the period
			CONC. (In mg/Nm3)			
			MAX.	MIN.		
CDU/VDU	FF-01/02	SO2	442.1	66.5	569	Stack with dual firing (FG:FO=69:31)
		NOX	301.8	60.6	381	
		CO (FF1)	8.3	1.25	166	
		CO (FF2)	8.5	3.25		
DCU	FF-01	SO2	328.3	47.47	533	Stack with dual firing (FG:FO=71:29)
		NOX	216.39	80.3	379	
HCU	FF-01/02	SO2	47.7	23.1	50	Stack with Gas firing
		NOX	122.2	15.2	350	
HCU	FF-03	SO2	145.9	10.00	168	Stack with dual firing (FG:FO=93:7)
		NOX	259.3	15.8	357	
H2U	FF-01	SO2	48.3	18.56	50	Stack with Gas firing
		NOX	55.0	10.41	350	
MSP	FF-01/02	SO2	35.7	3.9	50	Stack with Gas firing
		NOX	40.9	3.08	350	
CPP HRSG		SO2	36.0	10.10	50	Stack with dual firing (FG:NAP=100:00)
		NOX	30.8	6.77	350	
CPP UTILITY BOILER		SO2	43.4	14.0	50	Stack with Dual firing (FG:FO=100:00)
		NOX	157.1	12.11	350	
DHDT		SO2	26.3	1.4	50	Stack with Gas firing
		NOX	9.8	2.25	350	

* 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

ANNEXURE-III

QUARTERLY PERFORMANCE REPORT W.R.T ENVIRONMENTAL ASPECT.

DURING QUARTER IV(JAN-MARCH'19),2018-19

Online Stack Analyser data			-	-	-	
UNIT	FURNACE STACK	PARAMETER	OBSERVED VALUE		Limiting Concentration in mg/Nm3	Remarks Limit conc. calculated using fuel type & quan. used during the period
			CONC. (In mg/Nm3)			
			MAX.	MIN.		
CDU/VDU	FF-01/02	SO2	333.30	12.86	560	Stack with dual firing (FG:FO=69:31)
		NOX	288.86	22.67	381	
		CO (FF1)	7.01	1.38	165	
		CO (FF2)	6.63	1.30		
DCU	FF-01	SO2	191.07	31.42	453	Stack with dual firing (FG:FO=71:29)
		NOX	230.14	53.79	374	
HCU	FF-01/02	SO2	45.40	2.28	50	Stack with Gas firing
		NOX	116.20	8.62	350	
HCU	FF-03	SO2	128.23	5.14	144	Stack with dual firing (FG:FO=93:7)
		NOX	83.97	15.40	356	
H2U	FF-01	SO2	48.82	14.28	50	Stack with Gas firing
		NOX	49.58	14.70	350	
MSP	FF-01/02	SO2	39.61	0.94	50	Stack with Gas firing
		NOX	30.16	1.44	350	
CPP HRSG		SO2	45.70	8.00	50	Stack with dual firing (FG:NAP=100:00)
		NOX	43.93	5.34	350	
CPP UTILITY BOILER		SO2	49.60	1.71	50	Stack with Dual firing (FG:FO=100:00)
		NOX	249.80	3.49	350	
DHDT		SO2	8.50	2.30	50	Stack with Gas firing
		NOX	12.80	3.10	350	

* 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

Annexure-IV						
NUMALIGARH REFINERY LIMITED						
QUARTERLY PERFORMANCE WITH RESPECT TO ENVIRONMENTAL ASPECTS DURING QUARTER III (OCT-DEC' 18), 2018-19						
Ambient Air Quality Data						
STATION	PARAMETER	STD NAAQS-2009	Unit	OBSERVATIONS		
				MAX	MIN	AVG
REFINERY (WATCH TOWER NO. 6)	SO2	80 (24 hr avg.)	µg/m3	24.2	15.80	19.2
	NO2	80 (24 hr avg.)	µg/m3	26.4	16.6	21.1
	O3	100 (8 hr avg.)	µg/m3	28.2	19.2	24.1
	CO	2.000 (8 hr.avg.)	mg/m3	1.200	0.800	1.000
	NH3	400 (24 hr.avg.)	µg/m3	26.4	16.2	21.33
	PM 10	100 (24 hr.avg.)	µg/m3	76.4	18.1	54.4
	PM 2.5	60 (24 hr.avg.)	µg/m3	54.8	42.1	49.4
	Benzene	05 (Annual)	µg/m3	2.20	2.10	2.20
	BaP	01 (Annual)	ng/m3	<0.4	<0.4	<0.4
	Pb	1.0 (24 hr.avg.)	µg/m3	0.40	0.20	0.30
	As	06 (Annual)	ng/m3	<1.0	<1.0	1.00
	Ni	20 (Annual)	ng/m3	3.80	2.60	3.23
ECO-PARK IN NRL TOWNSHIP	SO2	80 (24 hr avg.)	µg/m3	16.80	8.70	13.1
	NO2	80 (24 hr avg.)	µg/m3	19.20	9.80	14.9
	O3	100 (8 hr avg.)	µg/m3	14.6	10.20	11.8
	CO	2.000 (8 hr.avg.)	mg/m3	0.300	0.200	0.233
	NH3	400 (24 hr.avg.)	µg/m3	12.4	10.20	11.1
	PM 10	100 (24 hr.avg.)	µg/m3	72.1	61.2	68.0
	PM 2.5	60 (24 hr.avg.)	µg/m3	48.2	29.8	40.2
	Benzene	05 (Annual)	µg/m3	2.08	2.08	2.08
	BaP	1.0 (Annual)	ng/m3	0.40	0.40	0.40

	RAW WATER INTAKE	Pb	1.0 (24 hr.avg.)	µg/m3	0.30	0.20	0.20
		As	6.0 (Annual)	ng/m3	1.00	1.00	1.00
		Ni	20 (Annual)	ng/m3	3.20	2.20	<2.0
		SO2	80 (24 hr avg.)	µg/m3	12.8	8.6	10.4
		NO2	80 (24 hr avg.)	µg/m3	14.1	8.8	11.6
		O3	100 (8 hr avg.)	µg/m3	11.6	10.2	10.5
		CO	2.000 (8 hr.avg.)	mg/m3	0.180	0.120	0.200
		NH3	400 (24 hr.avg.)	µg/m3	11.20	10.40	<10.0
		PM 10	100 (24 hr.avg.)	µg/m3	69.4	60.8	64.2
		PM 2.5	60 (24 hr.avg.)	µg/m3	38.6	26.8	31.0
		Benzene	05 (Annual)	µg/m3	2.08	2.08	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
	NH-39 BYPASS	Ni	20 (Annual)	ng/m3	2.00	2.00	2.00
		SO2	80 (24 hr avg.)	µg/m3	21.2	11.4	16.4
		NO2	80 (24 hr avg.)	µg/m3	22.6	12.8	18.8
		O3	100 (8 hr avg.)	µg/m3	21.4	11.6	15.1
		CO	2.000 (8 hr.avg.)	mg/m3	1.200	0.900	1.033
		NH3	400 (24 hr.avg.)	µg/m3	21.4	10.8	14.6
		PM 10	100 (24 hr.avg.)	µg/m3	74.2	68.4	71.1
		PM 2.5	60 (24 hr.avg.)	µg/m3	54.8	39.2	46.4
		Benzene	05 (Annual)	µg/m3	2.30	2.10	2.20
		BaP	1	ng/m3	0.40	0.40	0.40
		Pb	1.0 (24 hr.avg.)	µg/m3	0.30	0.20	0.300
		As	6	ng/m3	1.00	1.00	1.00

	Ni	20 (Annual)	ng/m3	3.80	2.20	3.17
KAZIRANGA WILDLIFE SANCTUARY AT AGARTOLI	SO2	80 (24 hr avg.)	µg/m3	9.20	6.40	8.19
	NO2	80 (24 hr avg.)	µg/m3	9.8	7.6	8.7
	O3	100 (8 hr avg.)	µg/m3	10.0	10.00	10.0
	CO	2.000 (8 hr.avg.)	mg/m3	<0.1	<0.1	<0.1
	NH3	400 (24 hr.avg.)	µg/m3	10.00	10.00	10.00
	PM 10	100 (24 hr.avg.)	µg/m3	58.1	29.6	48.0
	PM 2.5	60 (24 hr.avg.)	µg/m3	28.6	16.8	23.1
	Benzene	05 (Annual)	µg/m3	2.08	2.08	2.08
	BaP	1.0	ng/m3	0.40	0.40	0.40
	Pb	1.0 (24 hr.avg.)	µg/m3	0.02	0.02	0.02
	As	6	ng/m3	1.00	1.00	1.00
	Ni	20 (Annual)	ng/m3	2.00	2.00	2.00

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

			Annexure-IV				
NUMALIGARH REFINERY LIMITED							
QUARTERLY PERFORMANCE WITH RESPECT TO ENVIRONMENTAL ASPECTS							
DURING QUARTER IV (JAN-MARCH'19), 2018-19							
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	22.20	7.60	16.6
		NO2	80 (24 hr avg.)	µg/m3	24.40	14.80	19.9
		O3	100 (8 hr avg.)	µg/m3	34.10	19.60	24.5
		CO	2.000 (8 hr.avg.)	mg/m3	1.000	0.700	1.033
		NH3	400 (24 hr.avg.)	µg/m3	26.20	16.10	20.67
		PM 10	100 (24 hr.avg.)	µg/m3	78.40	61.80	71.1
		PM 2.5	60 (24 hr.avg.)	µg/m3	56.10	34.20	47.9
		Benzene	05 (Annual)	µg/m3	2.40	2.10	2.17
		BaP	01 (Annual)	ng/m3	<0.5	<0.4	<0.4
		Pb	1.0 (24 hr.avg.)	µg/m3	0.40	0.20	0.30
		As	06 (Annual)	ng/m3	<1.0	<1.0	1.00
		Ni	20 (Annual)	ng/m3	3.80	2.10	3.03
	ECO-PARK IN NRL TOWNSHIP	SO2	80 (24 hr avg.)	µg/m3	16.60	5.20	12.3
		NO2	80 (24 hr avg.)	µg/m3	19.10	7.20	14.7
		O3	100 (8 hr avg.)	µg/m3	22.1	10.20	13.3
		CO	2.000 (8 hr.avg.)	mg/m3	0.400	0.100	0.233
		NH3	400 (24 hr.avg.)	µg/m3	12.4	10.60	11.2
		PM 10	100 (24 hr.avg.)	µg/m3	71.4	48.1	64.2
		PM 2.5	60 (24 hr.avg.)	µg/m3	46.1	19.8	35.7

		Benzene	05 (Annual)	µg/m3	2.08	2.08	2.08
		BaP	1.0 (Annual)	ng/m3	0.40	0.40	0.40
		Pb	1.0 (24 hr.avg.)	µg/m3	0.30	0.20	0.30
		As	6.0 (Annual)	ng/m3	1.00	1.00	1.00
		Ni	20 (Annual)	ng/m3	3.10	2.00	2.53
	RAW WATER INTAKE	SO2	80 (24 hr avg.)	µg/m3	12.1	6.4	9.8
		NO2	80 (24 hr avg.)	µg/m3	14.8	10.0	11.8
		O3	100 (8 hr avg.)	µg/m3	10.8	10.0	10.3
		CO	2.000 (8 hr.avg.)	mg/m3	0.160	0.100	0.167
		NH3	400 (24 hr.avg.)	µg/m3	12.60	10.60	<10.0
		PM 10	100 (24 hr.avg.)	µg/m3	66.4	44.1	58.4
		PM 2.5	60 (24 hr.avg.)	µg/m3	39.8	16.4	30.6
		Benzene	05 (Annual)	µg/m3	2.08	2.08	2.08
		BaP	01 (Annual)	ng/m3	0.40	0.40	0.40
		Pb	1.0 (24 hr.avg.)	µg/m3	0.30	0.02	0.02
		As	06 (Annual)	ng/m3	1.00	1.00	1.00
		Ni	20 (Annual)	ng/m3	2.00	2.00	2.00
		SO2	80 (24 hr avg.)	µg/m3	21.6	9.8	16.5
		NO2	80 (24 hr avg.)	µg/m3	22.4	16.2	19.7
		O3	100 (8 hr avg.)	µg/m3	31.4	11.8	18.6
	NH-39 BYPASS	CO	2.000 (8 hr.avg.)	mg/m3	1.200	0.700	1.000
		NH3	400 (24 hr.avg.)	µg/m3	28.1	10.8	17.0
		PM 10	100 (24 hr.avg.)	µg/m3	78.1	61.2	70.3

		PM 2.5	60 (24 hr.avg.)	µg/m3	54.2	28.6	46.5	
		Benzene	05 (Annual)	µg/m3	2.70	2.10	2.30	
		BaP	1	ng/m3	0.40	0.40	0.40	
		Pb	1.0 (24 hr.avg.)	µg/m3	0.30	0.10	0.233	
		As	6	ng/m3	1.00	1.00	1.00	
		Ni	20 (Annual)	ng/m3	3.80	2.10	2.97	
	KAZIRANGA WILDLIFE SANCTUARY AT AGARTOLI	SO2	80 (24 hr avg.)	µg/m3	11.60	4.80	8.81	
		NO2	80 (24 hr avg.)	µg/m3	12.1	6.8	9.9	
		O3	100 (8 hr avg.)	µg/m3	10.0	10.00	10.0	
		CO	2.000 (8 hr.avg.)	mg/m3	<0.1	<0.1	<0.1	
		NH3	400 (24 hr.avg.)	µg/m3	10.00	10.00	10.00	
		PM 10	100 (24 hr.avg.)	µg/m3	67.4	32.4	54.1	
		PM 2.5	60 (24 hr.avg.)	µg/m3	29.4	16.6	24.8	
		Benzene	05 (Annual)	µg/m3	2.08	2.08	2.08	
		BaP	1.0	ng/m3	0.40	0.40	0.40	
		Pb	1.0 (24 hr.avg.)	µg/m3	0.02	0.02	0.02	
	As	6	ng/m3	1.00	1.00	1.00		
	Ni	20 (Annual)	ng/m3	2.00	2.00	2.00		
	BDL:Below Detection Level, All the parameters are found to be within limit							

LIQUID EFFLUENT POLLUTANT LEVEL DURING QR. III (OCT-DEC'18) 2018-19								
MONITORED VALUES in mg/lit.except pH								
Annexure V								
SL. NO	PARAMETERS	NO. OF OBS	MAX.	MIN.	AVG.	Limiting value for conc. (mg/l except for pH)	Quantum limit in Kg / 1000 MT of crude processed	
							Actual	Standard
1	pH	92	7.5	6.5	7.2	6-8.5	-	-
2	OIL & GREASE	92	4.9	2.5	4.17	5	1.14	2.0
3	SULPHIDE	92	<0.1	<0.1	<0.1	0.5	0.03	0.2
4	PHENOL	92	0.34	0.1	0.20	0.35	0.06	0.14
5	S. SOLID	92	19.0	7.4	13.6	20.0	3.71	8.0
6	COD	92	123.0	27.0	86.6	125.0	23.6	50.0
7	BOD3	92	14.0	7.0	10.95	15.0	2.99	6.0
8	CN	92	<0.02	<0.02	<0.02	0.2	0.01	0.08
9	Ammonia as N	3	4.6		2.81	15.0	0.77	6.0
10	Cr (Hexavalent)	3	0.0		0.00	0.1	0.00	0.04
11	Cr (Total)	3	0.03		0.099	2.0	0.03	0.8
12	Pb	3	0.04		0.021	0.1	0.006	0.04
13	Zn	3	0.06		0.046	5.0	0.01	2.0
14	Ni	3	0.04		0.026	1.0	0.01	0.4
15	Cu	3	0.03		0.02	1.0	0.005	0.4
16	Benzene	3	0.040		0.03	0.1	0.009	0.04
17	Benzo (a)-Pyrene	3	0.00		0.00	0.2	0.00	0.08
18	Hg	3	0.0		0.00	0.01	0.00	0.004
19	V	3	0.0		0.00	0.2	0.0	0.8
20	TKN	3	19.0		14.4	40.0	3.92	16.0
21	P	3	3.0		1.09	3.0	0.30	1.2

Limiting concentration of effluent is as per MoEF notification on standard vide GSR-186 (E)dated 18th March, 2008.

* BDL- Detectable Limit : 0.1 microgram/Litre

* Parameters from 9 to 21 are monitored once in a month as per CPCB norms

LIQUID EFFLUENT POLLUTANT LEVEL DURING QR. IV (JAN-MARCH'19) 2018-19								
MONITORED VALUES in mg/lit.except pH								
Annexure V								
SL. NO	PARAMETERS	NO. OF OBS	MAX.	MIN.	AVG.	Limiting value for conc. (mg/l except for pH)	Quantum limit in Kg / 1000 MT of crude processed	
							Actual	Standard
1	pH	92	7.5	6.5	7.3	6-8.5	-	-
2	OIL & GREASE	92	4.8	1.8	3.97	5	1.08	2.0
3	SULPHIDE	92	<0.1	<0.1	<0.1	0.5	0.03	0.2
4	PHENOL	92	0.34	0.1	0.17	0.35	0.05	0.14
5	S. SOLID	92	18.2	9.2	14.2	20.0	3.86	8.0
6	COD	92	120.0	45.0	62.8	125.0	17.1	50.0
7	BOD3	92	14.0	5.0	10.21	15.0	2.78	6.0
8	CN	92	<0.02	<0.02	<0.02	0.2	0.01	0.08
9	Ammonia as N	3	2.0		1.670	15.0	0.46	6.0
10	Cr (Hexavalent)	3	0.0		0.00	0.1	0.00	0.04
11	Cr (Total)	3	0.04		0.000	2.0	0.00	0.8
12	Pb	3	0.03		0.029	0.1	0.008	0.04
13	Zn	3	0.08		0.054	5.0	0.01	2.0
14	Ni	3	0.08		0.065	1.0	0.02	0.4
15	Cu	3	0.07		0.07	1.0	0.018	0.4
16	Benzene	3	0.048		0.03	0.1	0.008	0.04
17	Benzo (a)-Pyrene	3	0.00		0.00	0.2	0.00	0.08
18	Hg	3	0.0		0.00	0.01	0.00	0.004
19	V	3	0.0		0.02	0.2	0.0	0.8
20	TKN	3	33.0		25.7	40.0	7.00	16.0
21	P	3	1.5		0.74	3.0	0.20	1.2

Limiting concentration of effluent is as per MoEF notification on standard vide GSR-186 (E)dated 18th March, 2008.

* BDL- Detectable Limit : 0.1 microgram/Litre

* Parameters from 9 to 21 are monitored once in a month as per CPCB norms

