20th October 2015

To,
The Joint Director,
Ministry of Environment, Forests and Climate Change,
1st and 2nd Floor, HEPC Building,
No.34, Cathedral Garden Road,
Nungambakkam,
Chennai – 600034

Subject : Compliance of condition prescribed by MoEF&CC, RO, Chennai – Submission of Half Yearly Report – Reg.

Reference : Your Letter vide No. EP/12.1/2012-13/49/AP/1000, dated11.08.2015

Dear Sir,

With reference to the above letter, monitoring data pertaining to analysis of Treated liquid effluent, Groundwater, Ambient air, Fugitive emissions, Stack emissions, Meteorological parameters, Solid waste generation & handling in the complex is being forwarded for the period April 2015 to September 2015.

Thanking you

Yours faithfully
for Nagarjuna Fertilizers and Chemicals Limited

R. Raghavan
Senior Vice President (Operations & Projects)

Cc: Environmental Engineer,
Regional Office,
A. P. Pollution Control Board, Kakinada

Cc: AGM (Lab & Env.) / Manager (Env.) - File

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NAGARJUNA
GROUP
Nagarjuna Fertilizers
and Chemicals Limited

20th October 2015

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The Joint Director,
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1.0 Treated Liquid Effluent Data

The data for the period, April'15 to Sep'15, is enclosed at Annexure – III

2.0 Ambient Air Quality

The data for the period, April'15 to Sep'15, is enclosed at Annexure – IV

3.0 Groundwater Quality data

The data for the period, April'15 to Sep'15, is enclosed at Annexure – V

4.0 Fugitive Emission data

The data for the period, April'15 to Sep'15, is enclosed at Annexure – VI

5.0 Stack Emission data

The data for the period, April'15 to Sep'15, is enclosed at Annexure – VII

6.0 Information on Ammonia Sensor in Ammonia Storage Tank area

Ammonia sensors were installed in Ammonia Storage Tank area and are working normally.

7.0 Solid waste generation & their handling in the complex

Plant → / Waste ↓	Ammonia		CDR Plant	Urea		Off-sites
	I	II		I	II	
Spent Catalyst	✓	✓	---	---	---	---
CDR Reclamation Waste	---	---	✓	---	---	---
Activated Carbon	✓	✓	✓	---	---	✓
Waste Oils	✓	✓	✓	✓	✓	✓
PTP Sludge	---	---	---	---	---	✓

7.1 **Spent Catalyst:** The list of catalysts being used in the plant is given in the Annexure I and II. Plant I and II were commissioned in 1992 and

1998 respectively. Once the catalyst is exhausted, it is removed from the processes and is oxidized completely. This reduces the risk of fire hazard. After removal, the catalyst is packed in the drums containing impervious lining and clearly labeled as "Spent Catalyst - Hazardous". The spent catalyst drums are stored in covered, protected and earmarked area. During this period 87.912 MT of Spent Catalysts was disposed to APPCB authorized vendor.

7.2 CDR Reclamation Waste: In the Carbon Di Oxide Recovery plant KS1 solution is being used as absorbing media. SO_2 and NO_x in the flue gas react with the KS1 solution and forms Heat Stable Salts (HSS). When the HSS content in the solution reaches to the maximum limit, HSS can be removed by Caustic reclamation. During this period generation of CDR Reclamation waste was Nil.

7.3 Spent Activated Carbon: Activated carbon is used in Ammonia plant I & II, CDR Plant and in DM plant. Activated carbon is used to purify K_2CO_3 solution and KS1 solution in Ammonia plant and CDR Plant respectively. In DM plant, it is used to adsorb Chlorine and Organic matter from water. Activated carbon removed from the above processes is packed in containers with proper lining. The containers are labeled prominently and stored in a well-marked, covered and protected area. During this period, 15.33 MT of Spent Activated Carbon was disposed to CPCB authorized vendor.

7.4 Waste Oils: In the complex, Oil is used mainly for lubrication purposes. In the process plants, lubricating oils are centrifuged and reused in the process, hence quantity of waste oils generated is less when compared to the quantities in use. The waste oils generated from the process plants are reused in the Bagging plant for the lubrication of stitching thread. The used oil is also applied as protective film to the steel material stored in steel yard. During this period, used oil generation was NIL.

7.5 PTP Sludge: Raw water received from the Samalakot Summer reservoir contains clay and other impurities. These are filtered in the pretreatment plant. The sludge generated from the pretreatment section is alluvial in nature and is fertile. The fertility of the generated sludge is taken as an advantage for filling low lying areas in the green belt.

Annexure – I

Ammonia Plant – I

Catalyst for	Catalyst Name	Supplier
a) Desulphurisation		
(i) Hydrogenation	TK – 261	Halder Topsoe A/S
(ii) ZnO Absorbers	KATALCOJM32-4 + PURASPEC JM2020	Johnson Matthey
	C7-6	Sudchemie
b) Reforming		
(i) Primary	R-67R-7H / R-67-7H	Halder Topsoe A/S
(ii) Secondary	C14-4 GG/ C14-2 LDP	Sudchemie
a) Shift Conversion		
(i) H.T.	CDC-93C	Projects Development India Ltd.
(ii) L. T.	LSK-2 / LK-821-2 / LK-823	Halder Topsoe A/S
d) Methanation	PK-5	Halder Topsoe A/S
e) Ammonia Synthesis		
(i) Normal	KM1	Halder Topsoe A/S
(ii) Pre-Reduced	KM1R	Halder Topsoe A/S

Annexure – II

Ammonia Plant – II

Catalyst for	Catalyst Name	Supplier
a) Desulphurisation		
(i) Primary	TK-550	Halder Topsoe A/S
(ii) Secondary		
(a) Hydrogenation	TK – 261, HT A/S	Halder Topsoe A/S
(b) ZnO Absorbers	$KATALCO_{JM}32\text{-}4$	Johnson Matthey
	HTZ-3 / C7DD	Halder Topsoe A/S / Sudchemie
b) Reforming		
(i) Primary	R-67R-7H / R-67-7H	Halder Topsoe A/S
(ii) Secondary	C14-2 LDP/ JM54-8Q	Sudchemie / Johnson Matthey
c) Shift Conversion		
(i) H.T.	CDC-93C	Projects Development India Ltd.
(ii) L.T.	LSK / LK-821 / LK-821-2	Halder Topsoe A/S
d) Methanation	CDM-15	Projects Development India Ltd.
e) Ammonia Synthesis		
(i) Normal	KM1	Halder Topsoe A/S
(ii) Pre-Reduced	KM1R	Halder Topsoe A/S

Annexure - III

Treated Liquid Effluent Analysis:

Parameters	Unit	Prescribed Standards as per APPCB	April - 15	May - 15	June - 15	July - 15	Aug - 15	Sep - 15
pH		6.5 – 8.0	7.3	7.2	7.5	7.2	7.2	7.3
Suspended Solids	mg/l	100	35	35	31	34	34	35
Dissolved Solids	mg/l	2100	1477	1483	1118	1163	1254	1239
Ammonical Nitrogen as N	mg/l	50	9.9	12.0	11.2	13.1	11.5	10.2
Nitrates as N	mg/l	10	5.3	5.3	5.5	5.5	5.5	5.6
BOD	mg/l	30	9	9	8	8	9	10
COD	mg/l	250	36	35	35	34	34	38
Oil & Grease	mg/l	10	3.3	3.4	3.5	3.5	3.5	3.6
Phosphates as P	mg/l	5	0.8	0.8	0.7	0.7	0.8	0.7
Chlorides as Cl	mg/l	1000	510	513	425	433	394	436
TKN as N	mg/l	100	20.0	24.0	22.0	26.0	23.0	21.0

All the above values are monthly averages

Ambient Air Quality Monitoring Data of Station-I

Parameter	**SO_2**	**CO**	**NO_x**	**NH_3**	**Dust**	**Rainfall**	**Wind Speed**	**Predominant Wind Direction (towards)**	**Temperature °C**		**Relative Humidity %**		**Barometric Pressure**
Unit	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mm	Km/hr		Min	Max	Min	Max	Mill bar
April' 15	1.6	0.2	4.7	12.7	17.3	49.2	3.8	EAST	23.0	38.0	48	100	1013.6
May' 15	5.7	0.2	3.6	10.5	39.5	17.8	4.5	EAST	24.5	46.5	23	100	1008.7
June' 15	9.8	0.2	4.9	8.7	33.4	312.4	5.6	EAST	23.5	40.5	47	100	1005.5
July' 15	11.0	0.2	5.6	9.5	32.2	91.3	5.0	SOUTH-EAST	24.5	40.0	40	100	1005.9
Aug' 15	12.4	0.2	5.6	5.0	24.6	234.6	4.8	SOUTH-EAST	24.5	37.0	48	100	1007.4
Sep' 15	11.2	0.2	4.6	6.7	38.4	165.0	4.7	SOUTH-EAST	24.0	36.0	59	100	1006.2

All the above values are monthly averages except Rainfall, Temperature and Relative Humidity.

Ambient Air Quality Monitoring Data of Station-II

Parameter	**SO_2**	**CO**	**NO_x**	**NH_3**	**Dust**
Unit	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
April' 2015	8.2	0.2	9.0	9.6	40.7
May' 2015	8.6	0.3	8.6	10.8	45.6
June' 2015	8.0	0.2	7.2	9.2	48.0
July' 2015	7.7	0.2	8.2	9.1	43.1
Aug' 2015	8.1	0.3	8.2	8.5	49.2
Sep' 2015	7.7	0.2	8.1	9.5	50.3

All the above values are monthly averages

Ambient Air Quality Monitoring Data of Station-III

Parameter	**SO_2**	**CO**	**NO_x**	**NH_3**	**Dust**
Unit	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
April' 2015	7.6	0.2	8.0	8.3	41.8
May' 2015	7.7	0.2	7.5	8.1	39.0
June' 2015	6.2	0.2	6.6	8.2	40.8
July' 2015	6.8	0.2	7.3	7.4	41.3
Aug' 2015	7.6	0.2	6.9	8.1	38.1
Sep' 2015	7.6	0.2	6.9	8.3	39.3

All the above values are monthly averages

Ambient Air Quality Monitoring Data of Station-IV

Parameter	**SO_2**	**CO**	**NO_x**	**NH_3**	**Dust**
Unit	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
April' 2015	9.4	0.2	8.5	10.4	58.5
May' 2015	8.8	0.2	8.2	10.6	42.3
June' 2015	8.9	0.2	7.1	8.0	45.1
July' 2015	8.8	0.2	9.7	8.4	47.0
Aug' 2015	8.1	0.2	7.8	8.7	51.5
Sep' 2015	8.6	0.2	7.4	8.8	49.6

All the above values are monthly averages

Ambient Air Quality Monitoring Data of Station-V

Parameter	**SO_2**	**CO**	**NO_x**	**NH_3**	**Dust**
Unit	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
April' 2015	8.3	0.2	9.0	9.9	48.0
May' 2015	8.8	0.2	9.1	10.4	49.9
June' 2015	8.5	0.2	8.3	8.9	45.6
July' 2015	8.3	0.2	7.6	8.4	48.4
Aug' 2015	8.8	0.2	8.0	8.4	49.7
Sep' 2015	8.4	0.2	8.5	9.2	48.0

All the above values are monthly averages

Groundwater Quality Monitoring Analysis for the month of April 2015:

Area	pH	Conductivity millimhos/cm	P/M Alkalinity as $CaCO_3$ ppm	Chlorides as Cl ppm	Nitrates as NO_3 ppm	Ammonia as NH_3 ppm	Fluorides as F ppm	Total Hardness as $CaCO_3$ ppm	Calcium Hardness as $CaCO_3$ ppm
New Kakinada (Pallam Raju Nagar)	7.5	2.49	ND / 464	542	38	0.8	0.5	572	246
Cement Godown (Pallam Raju Nagar)	7.3	3.72	ND / 542	762	101	1.0	1.1	950	330
Nav Bharat Public School	7.1	1.25	ND / 364	136	162	0.6	0.8	436	354
Kondelupeta	7.4	3.02	ND / 622	582	16	1.1	0.7	456	236
Boat Club	9.0	3.64	38 / 466	704	1.9	1.9	1.3	284	88
West of NFCL	8.0	2.01	ND / 412	342	3.6	1.2	1.2	434	144
Green Belt Well	7.9	2.63	ND / 286	560	1.1	2.0	1.3	492	182
Ground water near ETP*	7.9	2.11	ND / 308	436	2.4	1.8	1.0	114	28
Ground water near Amm. Storage*	7.7	0.9	ND / 270	90	10.6	0.7	0.9	188	40
Ground water near Gate House*	8.0	1.19	ND / 212	218	3.4	2.5	1.0	282	102

* Piezometric Wells

Groundwater Quality Monitoring Analysis for the month of May 2015:

Area	pH	Conductivity millimhos/cm	P/M Alkalinity as $CaCO_3$ ppm	Chlorides as Cl ppm	Nitrates as NO_3 ppm	Ammonia as NH_3 ppm	Fluorides as F ppm	Total Hardness as $CaCO_3$ ppm	Calcium Hardness as $CaCO_3$ ppm
New Kakinada (Pallam Raju Nagar)	7.8	2.52	ND / 472	490	37	0.9	0.4	576	240
Cement Godown (Pallam Raju Nagar)	7.6	3.42	ND / 540	745	97	0.7	0.8	732	320
Nav Bharat Public School	7.3	1.35	ND / 360	107	177	0.9	0.8	376	292
Kondelupeta	7.6	2.92	ND / 568	582	25	0.8	0.6	500	220
Boat Club	7.8	2.56	ND / 510	391	2.4	1.6	1.1	302	96
West of NFCL	8.0	1.92	ND / 360	348	5.2	0.7	1.0	380	132
Green Belt Well	7.9	3.09	ND / 282	585	1.3	2.1	1.1	552	214
Ground water near ETP*	7.9	1.90	ND / 296	428	2.0	1.9	0.8	106	22
Ground water near Amm. Storage*	7.6	0.88	ND / 262	92	11.2	9.0	0.8	180	38
Ground water near Gate House*	7.8	1.17	ND / 218	214	3.8	2.0	0.9	276	96

* Piezometric Wells

Groundwater Quality Monitoring Analysis for the month of June 2015:

Area	pH	Conductivity millimhos/cm	P/M Alkalinity as $CaCO_3$ ppm	Chlorides as Cl ppm	Nitrates as NO_3 ppm	Ammonia as NH_3 ppm	Fluorides as F ppm	Total Hardness as $CaCO_3$ ppm	Calcium Hardness as $CaCO_3$ ppm
New Kakinada (Pallam Raju Nagar)	7.7	2.76	ND / 448	668	22	0.7	0.6	600	180
Cement Godown (Pallam Raju Nagar)	7.7	3.20	ND / 520	716	104	0.8	0.5	680	240
Nav Bharat Public School	7.4	1.50	ND / 380	142	109	0.7	1.0	416	188
Kondelupeta	7.8	3.01	ND / 588	710	22	0.8	0.6	620	192
Boat Club	8.3	2.04	4 / 480	334	3.2	1.9	0.9	300	102
West of NFCL	8.4	1.89	32 / 368	328	6.4	0.9	1.0	360	136
Green Belt Well	7.6	2.41	ND / 228	424	1.9	2.6	0.6	500	144
Ground water near ETP*	8.0	1.80	ND / 280	408	2.5	1.6	0.7	110	24
Ground water near Amm. Storage*	7.9	0.92	ND / 270	96	11.8	0.9	1.0	190	42
Ground water near Gate House*	8.0	1.16	ND / 222	210	2.9	2.2	1.0	272	100

* Piezometric Wells

Groundwater Quality Monitoring Analysis for the month of July 2015:

Area	pH	Conductivity millimhos/cm	P/M Alkalinity as $CaCO_3$ ppm	Chlorides as Cl ppm	Nitrates as NO_3 ppm	Ammonia as NH_3 ppm	Fluorides as F ppm	Total Hardness as $CaCO_3$ ppm	Calcium Hardness as $CaCO_3$ ppm
New Kakinada (Pallam Raju Nagar)	7.8	2.48	ND/440	520	24	0.6	0.8	510	160
Cement Godown (Pallam Raju Nagar)	7.8	3.76	ND/500	746	88	0.9	0.9	760	290
Nav Bharat Public School	7.5	1.61	ND/386	156	96	0.6	0.6	480	225
Kondelupeta	7.7	2.9	ND / 540	680	14	0.7	0.5	540	180
Boat Club	8.6	2.42	32 / 520	427	3.8	1.1	1.1	362	110
West of NFCL	8.1	1.97	ND / 346	298	4.2	1.6	1.6	374	140
Green Belt Well	7.9	2.67	ND / 242	560	1.5	1.8	1.0	540	158
Ground water near ETP*	7.8	2.06	ND / 246	392	2.2	1.2	0.8	120	30
Ground water near Amm. Storage*	7.6	0.87	ND / 254	88	10.4	0.6	0.9	178	38
Ground water near Gate House*	7.9	1.22	ND / 216	216	3.1	1.6	0.9	284	108

* Piezometric Wells

Groundwater Quality Monitoring Analysis for the month of August 2015:

Area	pH	Conductivity millimhos/cm	P/M Alkalinity as $CaCO_3$ ppm	Chlorides as Cl ppm	Nitrates as NO_3 ppm	Ammonia as NH_3 ppm	Fluorides as F ppm	Total Hardness as $CaCO_3$ ppm	Calcium Hardness as $CaCO_3$ ppm
New Kakinada (Pallam Raju Nagar)	7.5	2.74	ND / 460	532	18	1.0	0.9	520	252
Cement Godown (Pallam Raju Nagar)	7.5	3.95	ND / 480	834	108	0.9	0.8	944	384
Nav Bharat Public School	7.0	1.61	ND / 392	213	210	0.8	0.7	424	160
Kondelupeta	7.5	3.22	ND / 508	621	18	0.7	0.6	612	252
Boat Club	8.3	2.82	6 / 256	461	1.0	1.2	1.0	386	116
West of NFCL	7.9	1.94	ND / 352	355	4.5	0.8	1.4	368	124
Green Belt Well	7.5	2.83	ND / 260	545	1.6	1.3	0.9	560	196
Ground water near ETP*	7.9	2.00	ND / 290	406	2.3	1.5	0.9	104	20
Ground water near Amm. Storage*	7.7	0.89	ND / 266	88	10.9	0.6	1.1	186	46
Ground water near Gate House*	8.1	1.15	ND / 220	216	3.1	2.3	0.9	288	108

* Piezometric Wells

Groundwater Quality Monitoring Analysis for the month of September 2015:

Area	pH	Conductivity millimhos/cm	P/M Alkalinity as $CaCO_3$ ppm	Chlorides as Cl ppm	Nitrates as NO_3 ppm	Ammonia as NH_3 ppm	Fluorides as F ppm	Total Hardness as $CaCO_3$ ppm	Calcium Hardness as $CaCO_3$ ppm
New Kakinada (Pallam Raju Nagar	7.4	2.78	ND / 448	597	17.6	0.5	0.7	620	312
Cement Godown (Pallam Raju Nagar	7.3	3.76	ND / 480	853	90.8	1.0	0.9	968	324
Nav Bharat Public School	7.4	1.15	ND / 324	170	192	0.4	0.9	344	260
Kondelupeta	7.5	2.93	ND / 508	648	16.6	0.5	0.7	604	240
Boat Club	8.6	3.18	24 / 264	514	1.6	0.8	1.1	416	168
West of NFCL	7.8	1.96	ND / 340	341	3.8	0.7	1.2	464	180
Green Belt Well	7.7	2.60	ND / 248	575	2.9	1.9	0.8	516	172
Ground water near ETP*	7.6	1.90	ND / 268	400	2.1	1.2	1.0	98	18
Ground water near Amm. Storage*	7.3	0.69	ND / 246	80	10.4	0.5	1.2	174	40
Ground water near Gate House*	7.7	1.08	ND / 224	198	2.9	1.9	0.8	266	100

* Piezometric Wells

Work Environment Monitoring Data for the month of April 2015:

Sl. No.	Date	Location	Ammonia (NH_3) ppm	Carbon Monoxide (CO) ppm
1	13-04-15	Fire & Safety Control Room	0.1	<1
2	13-04-15	OHC	0.1	<1
3	13-04-15	Control Room (Ammonia & Urea 1)	0.1	<1
4	13-04-15	Ammonia 1 (02 Area)	0.1	<1
5	13-04-15	Ammonia 1 (03 Area) Field Cabin	0.1	<1
6	13-04-15	Ammonia 1 (04 Area) Acoustic Room	0.2	<1
7	13-04-15	Ammonia 1 (05 Area) Field Cabin	0.3	<1
8	13-04-15	Field Cabin Amm 1 (Mech. Maint.)	0.1	<1
9	13-04-15	Field Cabin (Urea 1)	0.2	<1
10	13-04-15	Field Cabin Urea 1 (Mech. Maint.)	0.1	<1
11	14-04-15	Control Room (GT-C)	0.1	<1
12	14-04-15	Control Room (Ammonia & Urea 2)	0.1	<1
13	14-04-15	Ammonia 2 (02 Area)	0.1	<1
14	14-04-15	Ammonia 2 (03 Area) Field Cabin	0.1	<1
15	14-04-15	Ammonia 2 (04 Area) Acoustic Room	0.3	<1
16	14-04-15	Ammonia 2 (05 Area) Field Cabin	0.6	<1
17	14-04-15	Field Cabin Amm 2 (Mech. Maint.)	0.1	<1
18	14-04-15	Cooling Towers 2 Field Cabin	0.2	<1
19	15-04-15	Field Cabin (Urea 2)	0.3	<1
20	15-04-15	Field Cabin Urea 2 (Mech. Maint.)	0.2	<1
21	15-04-15	Loading Area (Bagging plant)	0.8	<1
22	15-04-15	Boilers Field Cabin	0.1	<1
23	15-04-15	Control Room (Boilers)	0.1	<1
24	15-04-15	Control Room (Ammonia Storage)	0.1	<1
25	15-04-15	Control Room (Cooling Towers 1)	0.1	<1
26	15-04-15	Security Gate	0.1	<1
27	15-04-15	Distribution Office at Security Gate	0.1	<1

Work Environment Monitoring Data for the month of May 2015:

Sl. No.	Date	Location	Ammonia (NH_3) ppm	Carbon Monoxide (CO) ppm
1	18-05-15	Fire & Safety Control Room	0.1	<1
2	18-05-15	OHC	0.1	<1
3	18-05-15	Control Room (Ammonia & Urea 1)	0.1	<1
4	18-05-15	Ammonia 1 (02 Area)	0.1	<1
5	18-05-15	Ammonia 1 (03 Area) Field Cabin	0.1	<1
6	18-05-15	Ammonia 1 (04 Area) Acoustic Room	0.2	<1
7	18-05-15	Ammonia 1 (05 Area) Field Cabin	0.1	<1
8	18-05-15	Field Cabin Amm 1 (Mech. Maint.)	0.1	<1
9	18-05-15	Field Cabin (Urea 1)	0.4	<1
10	18-05-15	Field Cabin Urea 1 (Mech. Maint.)	0.3	<1
11	20-05-15	Control Room (GT-C)	0.1	<1
12	20-05-15	Control Room (Ammonia & Urea 2)	0.1	<1
13	20-05-15	Ammonia 2 (02 Area)	0.1	<1
14	20-05-15	Ammonia 2 (03 Area) Field Cabin	0.1	<1
15	20-05-15	Ammonia 2 (04 Area) Acoustic Room	0.4	<1
16	20-05-15	Ammonia 2 (05 Area) Field Cabin	0.1	<1
17	20-05-15	Field Cabin Amm 2 (Mech. Maint.)	0.2	<1
18	20-05-15	Cooling Towers 2 Field Cabin	0.1	<1
19	19-05-15	Field Cabin (Urea 2)	0.1	<1
20	19-05-15	Field Cabin Urea 2 (Mech. Maint.)	0.1	<1
21	19-05-15	Loading Area (Bagging plant)	1.1	<1
22	19-05-15	Boilers Field Cabin	0.1	<1
23	19-05-15	Control Room (Boilers)	0.1	<1
24	19-05-15	Control Room (Ammonia Storage)	0.1	<1
25	19-05-15	Control Room (Cooling Towers 1)	0.1	<1
26	19-05-15	Security Gate	0.1	<1
27	19-05-15	Distribution Office at Security Gate	0.1	<1

Work Environment Monitoring Data for the month of June 2015:

Sl. No.	Date	Location	Ammonia (NH_3) ppm	Carbon Monoxide (CO) ppm
1	09-06-15	Fire & Safety Control Room	0.1	<1
2	09-06-15	OHC	0.1	<1
3	09-06-15	Control Room (Ammonia & Urea 1)	0.1	<1
4	09-06-15	Ammonia 1 (02 Area)	0.1	<1
5	09-06-15	Ammonia 1 (03 Area) Field Cabin	0.1	<1
6	09-06-15	Ammonia 1 (04 Area) Acoustic Room	0.1	<1
7	09-06-15	Ammonia 1 (05 Area) Field Cabin	0.1	<1
8	09-06-15	Field Cabin Amm 1 (Mech. Maint.)	0.1	<1
9	09-06-15	Field Cabin (Urea 1)	0.1	<1
10	09-06-15	Field Cabin Urea 1 (Mech. Maint.)	0.1	<1
11	10-06-15	Control Room (GT-C)	0.1	<1
12	10-06-15	Control Room (Ammonia & Urea 2)	0.1	<1
13	10-06-15	Ammonia 2 (02 Area)	0.1	<1
14	10-06-15	Ammonia 2 (03 Area) Field Cabin	0.1	<1
15	10-06-15	Ammonia 2 (04 Area) Acoustic Room	0.4	<1
16	10-06-15	Ammonia 2 (05 Area) Field Cabin	0.2	<1
17	10-06-15	Field Cabin Amm 2 (Mech. Maint.)	0.3	<1
18	10-06-15	Cooling Towers 2 Field Cabin	0.1	<1
19	08-06-15	Field Cabin (Urea 2)	0.1	<1
20	08-06-15	Field Cabin Urea 2 (Mech. Maint.)	0.1	<1
21	08-06-15	Loading Area (Bagging plant)	1.3	<1
22	08-06-15	Boilers Field Cabin	0.1	<1
23	08-06-15	Control Room (Boilers)	0.1	<1
24	08-06-15	Control Room (Ammonia Storage)	0.1	<1
25	08-06-15	Control Room (Cooling Towers 1)	0.1	<1
26	08-06-15	Security Gate	0.1	<1
27	08-06-15	Distribution Office at Security Gate	0.1	<1

Work Environment Monitoring Data for the month of July 2015:

Sl. No.	Date	Location	Ammonia (NH_3) ppm	Carbon Monoxide (CO) ppm
1	15-07-15	Fire & Safety Control Room	0.1	<1
2	15-07-15	OHC	0.1	<1
3	15-07-15	Control Room (Ammonia & Urea 1)	0.1	<1
4	15-07-15	Ammonia 1 (02 Area)	0.1	<1
5	15-07-15	Ammonia 1 (03 Area) Field Cabin	0.1	<1
6	15-07-15	Ammonia 1 (04 Area) Acoustic Room	0.3	<1
7	15-07-15	Ammonia 1 (05 Area) Field Cabin	0.2	<1
8	15-07-15	Field Cabin Amm 1 (Mech. Maint.)	0.1	<1
9	15-07-15	Field Cabin (Urea 1)	0.2	<1
10	15-07-15	Field Cabin Urea 1 (Mech. Maint.)	0.1	<1
11	13-07-15	Control Room (GT-C)	0.1	<1
12	13-07-15	Control Room (Ammonia & Urea 2)	0.1	<1
13	13-07-15	Ammonia 2 (02 Area)	0.1	<1
14	13-07-15	Ammonia 2 (03 Area) Field Cabin	0.1	<1
15	13-07-15	Ammonia 2 (04 Area) Acoustic Room	0.3	<1
16	13-07-15	Ammonia 2 (05 Area) Field Cabin	0.2	<1
17	13-07-15	Field Cabin Amm 2 (Mech. Maint.)	0.3	<1
18	13-07-15	Cooling Towers 2 Field Cabin	0.2	<1
19	14-07-15	Field Cabin (Urea 2)	0.2	<1
20	14-07-15	Field Cabin Urea 2 (Mech. Maint.)	0.1	<1
21	14-07-15	Loading Area (Bagging plant)	0.9	<1
22	14-07-15	Boilers Field Cabin	0.1	<1
23	14-07-15	Control Room (Boilers)	0.1	<1
24	14-07-15	Control Room (Ammonia Storage)	0.1	<1
25	14-07-15	Control Room (Cooling Towers 1)	0.1	<1
26	14-07-15	Security Gate	0.1	<1
27	14-07-15	Distribution Office at Security Gate	0.1	<1

Work Environment Monitoring Data for the month of August 2015:

Sl. No.	Date	Location	Ammonia (NH_3) ppm	Carbon Monoxide (CO) ppm
1	25-08-15	Fire & Safety Control Room	0.1	<1
2	25-08-15	OHC	0.1	<1
3	25-08-15	Control Room (Ammonia & Urea 1)	0.1	<1
4	25-08-15	Ammonia 1 (02 Area)	0.1	<1
5	25-08-15	Ammonia 1 (03 Area) Field Cabin	0.1	<1
6	25-08-15	Ammonia 1 (04 Area) Acoustic Room	0.2	<1
7	25-08-15	Ammonia 1 (05 Area) Field Cabin	0.1	<1
8	25-08-15	Field Cabin Amm 1 (Mech. Maint.)	0.1	<1
9	25-08-15	Field Cabin (Urea 1)	0.3	<1
10	25-08-15	Field Cabin Urea 1 (Mech. Maint.)	0.1	<1
11	24-08-15	Control Room (GT-C)	0.1	<1
12	24-08-15	Control Room (Ammonia & Urea 2)	0.1	<1
13	24-08-15	Ammonia 2 (02 Area)	0.1	<1
14	24-08-15	Ammonia 2 (03 Area) Field Cabin	0.1	<1
15	24-08-15	Ammonia 2 (04 Area) Acoustic Room	0.5	<1
16	24-08-15	Ammonia 2 (05 Area) Field Cabin	0.4	<1
17	24-08-15	Field Cabin Amm 2 (Mech. Maint.)	0.4	<1
18	24-08-15	Cooling Towers 2 Field Cabin	0.3	<1
19	26-08-15	Field Cabin (Urea 2)	0.2	<1
20	26-08-15	Field Cabin Urea 2 (Mech. Maint.)	0.2	<1
21	26-08-15	Loading Area (Bagging plant)	1.0	<1
22	26-08-15	Boilers Field Cabin	0.1	<1
23	26-08-15	Control Room (Boilers)	0.1	<1
24	26-08-15	Control Room (Ammonia Storage)	0.1	<1
25	26-08-15	Control Room (Cooling Towers 1)	0.1	<1
26	26-08-15	Security Gate	0.1	<1
27	26-08-15	Distribution Office at Security Gate	0.1	<1

Work Environment Monitoring Data for the month of September 2015:

Sl. No.	Date	Location	Ammonia (NH_3) ppm	Carbon Monoxide (CO) ppm
1	21-09-15	Fire & Safety Control Room	0.1	<1
2	21-09-15	OHC	0.1	<1
3	21-09-15	Control Room (Ammonia & Urea 1)	0.1	<1
4	21-09-15	Ammonia 1 (02 Area)	0.1	<1
5	21-09-15	Ammonia 1 (03 Area) Field Cabin	0.1	<1
6	21-09-15	Ammonia 1 (04 Area) Acoustic Room	0.3	<1
7	21-09-15	Ammonia 1 (05 Area) Field Cabin	0.3	<1
8	21-09-15	Field Cabin Amm 1 (Mech. Maint.)	0.1	<1
9	21-09-15	Field Cabin (Urea 1)	0.3	<1
10	21-09-15	Field Cabin Urea 1 (Mech. Maint.)	0.3	<1
11	23-09-15	Control Room (GT-C)	0.1	<1
12	23-09-15	Control Room (Ammonia & Urea 2)	0.1	<1
13	23-09-15	Ammonia 2 (02 Area)	0.1	<1
14	23-09-15	Ammonia 2 (03 Area) Field Cabin	0.1	<1
15	23-09-15	Ammonia 2 (04 Area) Acoustic Room	0.3	<1
16	23-09-15	Ammonia 2 (05 Area) Field Cabin	0.3	<1
17	23-09-15	Field Cabin Amm 2 (Mech. Maint.)	0.2	<1
18	23-09-15	Cooling Towers 2 Field Cabin	0.1	<1
19	22-09-15	Field Cabin (Urea 2)	0.3	<1
20	22-09-15	Field Cabin Urea 2 (Mech. Maint.)	0.2	<1
21	22-09-15	Loading Area (Bagging plant)	1.1	<1
22	22-09-15	Boilers Field Cabin	0.1	<1
23	22-09-15	Control Room (Boilers)	0.1	<1
24	22-09-15	Control Room (Ammonia Storage)	0.1	<1
25	22-09-15	Control Room (Cooling Towers 1)	0.1	<1
26	22-09-15	Security Gate	0.1	<1
27	22-09-15	Distrubution Office at Security Gate	0.1	<1

Stack Monitoring Data for the month of April 2015 (Process Stacks):

Date	PLANT- I				PLANT- II	CFG PLANT
	Reformer stack F-(201+202) (Against Chimney No. 20)	HRSG A (Chimney No. 4)	HRSG B (Chimney No. 5)	Boiler Stack (Chimney No. 3)	HRSG C (Chimney No. 14)	Stack attached to De-dusting and Scrubbing Section (Chimney No. 21)
	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)
01.04.15	9.0	8.0	Under Shut Down	7.0	9.0	Under Shut Down
08.04.15	8.0	10.0	Under Shut Down	8.0	10.0	Under Shut Down
15.04.15	10.0	11.0	Under Shut Down	6.0	11.0	Under Shut Down
22.04.15	11.0	12.0	Under Shut Down	3.0	12.0	Under Shut Down
29.04.15	9.0	10.0	Under Shut Down	5.0	10.0	Under Shut Down

Stack Monitoring Data for the month of April 2015 (Prill Towers):

Plant	Date	Dust		Plant	Date	Dust	
		mg/Nm^3	Kg/MT			mg/Nm^3	Kg/MT
I (Chimney No. 6)	07.04.15	20.1	0.205	II (Chimney No. 15)	07.04.15	24.0	0.234
	14.04.15	19.9	0.182		14.04.15	22.4	0.195
	21.04.15	22.5	0.201		21.04.15	23.8	0.203
	28.04.15	24.2	0.199		28.04.15	25.1	0.199

Stack Monitoring Data for the month of May 2015 (Process Stacks):

Date	PLANT- I				PLANT- II	CFG PLANT
	Reformer stack F-(201+202) (Against Chimney No. 20)	HRSG A (Chimney No. 4)	HRSG B (Chimney No. 5)	Boiler Stack (Chimney No. 3)	HRSG C (Chimney No. 14)	Stack attached to De-dusting and Scrubbing Section (Chimney No. 21)
	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)
06.05.15	10.0	11.0	Under Shut Down	9.0	10.0	Under Shut Down
13.05.15	9.0	9.0	Under Shut Down	5.0	12.0	Under Shut Down
20.05.15	12.0	10.0	Under Shut Down	7.0	9.0	Under Shut Down
27.05.15	14.0	8.0	Under Shut Down	4.0	8.0	Under Shut Down

Stack Monitoring Data for the month of May 2015 (Prill Towers):

Plant	Date	Dust		Plant	Date	Dust	
		mg/Nm^3	Kg/MT			mg/Nm^3	Kg/MT
I (Chimney No. 6)	05.05.15	20.9	0.171	II (Chimney No. 15)	05.05.15	21.8	0.171
	12.05.15	22.8	0.218		12.05.15	19.2	0.195
	19.05.15	24.5	0.257		19.05.15	18.5	0.183
	26.05.15	25.8	0.271		26.05.15	24.6	0.237

Stack Monitoring Data for the month of June 2015 (Process Stacks):

Date	PLANT- I				PLANT- II	CFG PLANT
	Reformer stack F-(201+202) (Against Chimney No. 20)	**HRSG A (Chimney No. 4)**	**HRSG B (Chimney No. 5)**	**Boiler Stack (Chimney No. 3)**	**HRSG C (Chimney No. 14)**	**Stack attached to De-dusting and Scrubbing Section (Chimney No. 21)**
	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)
03.06.15	Under Shut Down	12.0	Under Shut Down	7.0	11.0	Under Shut Down
10.06.15	Under Shut Down	10.0	Under Shut Down	9.0	9.0	Under Shut Down
17.06.15	Under Shut Down	8.0	9.0	6.0	Under Shut Down	Under Shut Down
24.06.15	Under Shut Down	Under Shut Down	8.0	5.0	7.0	Under Shut Down

Stack Monitoring Data for the month of June 2015 (Prill Towers):

Plant	Date	Dust		Plant	Date	Dust	
		mg/Nm^3	Kg/MT			mg/Nm^3	Kg/MT
I (Chimney No. 6)	02.06.15	Under Shut Down		II (Chimney No. 15)	02.06.15	23.5	0.203
	09.06.15	Under Shut Down			09.06.15	25.1	0.220
	16.06.15	Under Shut Down			16.06.15	19.9	0.174
	23.06.15	Under Shut Down			23.06.15	21.8	0.180
	30.06.15	21.5	0.221		30.06.15	22.1	0.226

Stack Monitoring Data for the month of July 2015 (Process Stacks):

Date	PLANT- I				PLANT- II	CFG PLANT
	Reformer stack F-(201+202) (Against Chimney No. 20)	**HRSG A (Chimney No. 4)**	**HRSG B (Chimney No. 5)**	**Boiler Stack (Chimney No. 3)**	**HRSG C (Chimney No. 14)**	**Stack attached to De-dusting and Scrubbing Section (Chimney No. 21)**
	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)
01.07.15	8.0	Under Shut Down	9.0	10.0	9.0	Under Shut Down
08.07.15	10.0	Under Shut Down	8.0	11.0	8.0	Under Shut Down
15.07.15	12.0	Under Shut Down	11.0	8.0	10.0	Under Shut Down
22.07.15	9.0	Under Shut Down	9.0	6.0	7.0	29.4
29.07.15	7.0	Under Shut Down	8.0	13.0	6.0	18.5

Stack Monitoring Data for the month of July 2015 (Prill Towers):

Plant	Date	Dust		Plant	Date	Dust	
		mg/Nm^3	Kg/MT			mg/Nm^3	Kg/MT
I (Chimney No. 6)	07.07.15	23.2	0.226	II (Chimney No. 15)	07.07.15	21.5	0.208
	14.07.15	24.4	0.253		14.07.15	20.8	0.215
	21.07.15	22.6	0.227		21.07.15	20.2	0.202
	28.07.15	24.9	0.248		28.07.15	23.1	0.227

Stack Monitoring Data for the month of August 2015 (Process Stacks):

Date	PLANT- I				PLANT- II	CFG PLANT
	Reformer stack F-(201+202) (Against Chimney No. 20)	HRSG A (Chimney No. 4)	HRSG B (Chimney No. 5)	Boiler Stack (Chimney No. 3)	HRSG C (Chimney No. 14)	Stack attached to De-dusting and Scrubbing Section (Chimney No. 21)
	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)
05.08.15	12.0	Under Shut Down	10.0	9.0	8.0	22.0
12.08.15	8.0	Under Shut Down	12.0	10.0	7.0	20.9
19.08.15	16.0	Under Shut Down	9.0	4.0	5.0	16.0
26.08.15	10.0	Under Shut Down	8.0	7.0	10.0	25.4

Stack Monitoring Data for the month of August 2015 (Prill Towers):

Plant	Date	Dust		Plant	Date	Dust	
		mg/Nm^3	Kg/MT			mg/Nm^3	Kg/MT
I (Chimney No. 6)	04.08.15	21.4	0.227	II (Chimney No. 15)	04.08.15	20.9	0.219
	11.08.15	18.9	0.207		11.08.15	19.5	0.204
	18.08.15	25.2	0.265		18.08.15	23.8	0.249
	25.08.15	19.8	0.200		25.08.15	26.0	0.262

Stack Monitoring Data for the month of September 2015 (Process Stacks):

Date	PLANT- I				PLANT- II	CFG PLANT
	Reformer stack F-(201+202) (Against Chimney No. 20)	HRSG A (Chimney No. 4)	HRSG B (Chimney No. 5)	Boiler Stack (Chimney No. 3)	HRSG C (Chimney No. 14)	Stack attached to De-dusting and Scrubbing Section (Chimney No. 21)
	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)	SPM (mg/Nm^3)
02.09.15	9.0	Under Shut Down	11.0	8.0	9.0	12.0
09.09.15	11.0	Under Shut Down	10.0	11.0	10.0	23.6
16.09.15	13.0	10.0	13.0	7.0	11.0	25.1
23.09.15	15.0	9.0	10.0	9.0	7.0	28.4
30.09.15	10.0	12.0	9.0	10.0	12.0	16.9

Stack Monitoring Data for the month of September 2015 (Prill Towers):

Plant	Date	Dust		Plant	Date	Dust	
		mg/Nm^3	Kg/MT			mg/Nm^3	Kg/MT
I (Chimney No. 6)	01.09.15	20.3	0.161	II (Chimney No. 15)	01.09.15	21.5	0.170
	08.09.15	23.6	0.192		08.09.15	20.8	0.169
	15.09.15	26.4	0.194		15.09.15	24.1	0.176
	22.09.15	24.1	0.177		22.09.15	25.8	0.189
	29.09.15	20.9	0.156		29.09.15	27.1	0.199