

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

ORIGINAL APPLICATION NO. 256 OF 2020(SZ)

**Tribunal on its own motion Suo Moto based
On the News Item in News Desk Magazine
Dt.11.11.2020 , Air Pollution and industries,
"These Six Industries in North Chennai are
Polluting the air for more than half the Year"**

-Vs-

**1. Union of India,
Ministry of Environment, Forest
And climate Change,
Rep by its Secretary,
Indira Paryavaran Bhavan, Jorbagh Road,
New Delhi- 100 003 and 15 others**

--Respondents

Report on Pollution Monitoring and Controlling Facilities

I , Ram Ganesh R son of G.Ramamoorthy , aged about 33 years , having my place of work at Madras Fertilizers Ltd., Post Bag No.2, Manali , Chennai-600 068 , do hereby solemnly affirm and sincerely state as follows:-

1. I am the Company secretary of Madras Fertilizers Ltd., arrayed as 16th Respondent in the Original Application and am well acquainted with the facts of the case.
2. I submit that MFL is a Public Sector Undertaking, comes under the Department of Fertilizers, Ministries of Chemicals & Fertilizers, Govt of India. MFL is the only PSU producing Urea in South India, with RLNG as feed stock and comes under the Essential Commodities Act 1955. It supplies Fertilizers to all states of South India and having a market share of 14% in Urea sales & 9% in NPK Complex fertilizers.


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3. Products & facilities:

- MFL produces Urea and NPK complex fertilizers in different grades.
- It has an Ammonia plant which is the main feed stock for the production of Urea.
- It has a Utility plant which caters the water requirements of the company.
- It has a RO plant where the Tertiary treated Sewage is further treated to be used in the Boilers.
- MFL imports Phosphoric acid and Muriate of Potash (MOP) which are essential for the manufacturing of NPK complex fertilizer.

4) What are the types of Pollutions that the Company causes?

Possible Air Pollutants:

- a) PM, SO_x and NO_x emission from Boiler stacks
- b) Ammonia emission from Urea plant Prill Tower
- c) HF, PM and Ammonia emission from NPK plant stack

Possible water Pollutants:

Cooling water Blow down

Ammonia and Urea plant effluents

RO Rejects



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5) What are the Pollution Monitoring and Controlling measures that the Company has taken?

a) Stack Monitoring:

Process Stacks in MFL	Pollution Monitoring system	Pollution Control Mechanism
Urea Prill Tower	<p>Possible Air pollutant from Prill Tower stack is Ammonia.</p> <p>An online Ammonia Analyzer was installed in Prill Tower to measure Ammonia content from the exit gas. The Ammonia values from the stack are well within the allowable limits and the data are being uploaded in TNPCB & CPCB servers.</p>	<p>A Demister has been set up at Prill Tower to control Ammonia escape from stack. It is a wet stack with chevron filters which will scrub NH_3 that may escape from the Evaporator outlet. These NH_3 vapours are absorbed using water and the ammonia rich water is taken back to the Urea process.</p>
NPK Stack	<p>HF, PM and NH_3 Analyzer has been installed in NPK stack to monitor its presence.</p> <p>The data are continuously being uploaded to TNPCB / CPCB servers. The values are within the limits prescribed in the standards.</p>	<p>MFL is not producing HF but the Phosphoric Acid which is one of Raw Materials for NPK production contains Flourine (about 0.3% - 0.6%). HF being a weak acid gets neutralized in the process and the possible emission through stack can never exceed the standard value of $10 \text{ mg}/\text{NM}^3$. Hence, always HF will be within the permissible limits.</p> <p>A Scrubbing System has been installed in the process to control PM and Ammonia from stack gases. Scrubbing system is a part of the NPK manufacturing process. The scrubbed liquid is recycled in the process.</p>
110 ATA / Process Condensate Boiler Stack	<p>Continuous Emission Monitoring Station (CEMS) is in place to measure PM, NO_x and Sox level in stack gases. The values are well within the limits. The data are continuously uploaded to TNPCB / CPCB servers.</p>	<p>Stack Height: Boiler stacks are built to comply with Minimum National Standards (MINAS) prescribed by CPCB, with sufficient height (117 M) so as to avoid the flue gas descending into the nearby area.</p> <p>Fuel conversion to RLNG: Fuel for these Boilers has been converted from Fuel oil to a clean fuel Natural Gas (RLNG) effective Mar 2019.</p>

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Utility Boiler 1 & 2 Stack	Continuous Emission Monitoring Station (CEMS) is in place to measure PM, NOx and Sox level is stack gases. The values are well within the limits. The data are continuously uploaded to TNPCB / CPCB servers.	Stack Height: Boiler stacks are built to comply with MINAS standards with sufficient height (70 M) so as to avoid the flue gas descending into the nearby area. Fuel conversion from Fuel Oil to RLNG firing Project is in progress and is expected to be completed by December 2022.
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b) **Ambient Air Quality Monitoring :**

Continuous Ambient Air Quality Monitoring Stations (CAAQMS):

MFL has installed five Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and the data are connected to Care AirCentre of TNPCB. 11 nos of Ammonia Sensors have been installed in the peripheral of MFL.

POLLUTION ABATEMENT FACILITIES IN MFL: WATER

Cooling Water Blow down Plant	Blow down from cooling water are treated in this plant and the treated water are sent back to cooling tower make-up. Hence no discharge to environment.
Ammonia and Urea plant effluents	Hydrolyser Stripper Plant has been installed for treating the process effluents from Ammonia and Urea Plants. The treated water is sent back for Urea plant demister make-up. The residual process solution is sent back to urea process.
RO Reject	The reject from RO plant is sold to neighbor industry, MPL, hence no discharge to environment.

Therefore MFL doesn't discharge any effluent into the ground and has thus achieved ZLD (Zero Liquid Discharge). MFL has installed a flow meter and a camera as per CPCB direction for ZLD. The data is continuously streamed to TNPCB/CPCB servers.

6) What are the remedial measures available?

Remedial measure in Ammonia Plant:

All the relief valves are connected to Flare. In the event of any leak / release of relief valve, the escaping Ammonia will be burnt in the flare stack.


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Remedial measure in Urea Plant:

Urea plant Prill stack height is 200 feet for safe discharge of emissions. Ammonia relief valves are connected to storage tank. In the event of any leak / release of relief valve, the escaping Ammonia will be scrubbed and recovered. Similarly, in the event of process solution relief valves opening out it will be collected in the sump. Additionally, vent stack is there to dilute the escaping Ammonia by steam quenching and water spraying.

Remedial measure in NPK Plant:

Scrubbing system is available here where dilute acid is used to scrub any Ammonia that may come out in the event of any untoward incident. Fumes scrubber and Dust scrubber are also available.

7) When were those Monitoring and Controlling equipment installed, and what type of Machinery, age of the Machinery, Model nos of that equipment and when was it last service?

a) Stack Monitoring:

Process Stacks in MFL	Pollution Monitoring system	Pollution Control Mechanism
Urea Prill Tower	An online Ammonia Analyzer was installed in Prill Tower (July 2018) This instruments uses Laser Diode technique (LDS 6) with an auto calibration facility. The analyzer is of Siemens AG, German make and is supplied by M/s Adage Automation P Ltd.	A Demister has been set up at Prill Tower to control Ammonia escape from stack and is in service since 1997.
NPK Stack	<p>HF analyser (Siemens AG, German make) is in line since July 2018. It uses the Laser Diode technique (LDS 6) and supplied by M/s Adage Automation P Ltd. Auto calibration is available and hence needs no calibration externally.</p> <p>PM analyser has been installed by M/s Adler Instruments during November 2019. It uses the Optical based light attenuation technology. Calibration is done once in 3 months by the OEM. The latest calibration was done during June, 2022.</p> <p>NH3 analyser was installed in Sep 9, 2021. The analyser is of Siemens AG, German make and is supplied by M/s Adage Automation P Ltd. Auto calibration is available and</p>	Scrubbing system is a part of the NPK manufacturing process. The scrubbed liquid is recycled in the process.


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	hence needs no calibration externally.	
110 ATA / Process Condensate Boiler	Continuous Emission Monitoring Station (CEMS) has been installed by M/s AICPL during October 2020. Auto calibration is available and hence needs no calibration externally. The values are well within the limits. The data are continuously uploaded to TNPCCB / CPCB servers.	Stack Height: Boiler stacks are built to comply with Minimum National Standards (MINAS) prescribed by CPCB, with sufficient height (117 M) so as to avoid the flue gas descending into the nearby area. Fuel conversion to RLNG: Fuel for these Boilers has been converted from Fuel oil to a clean fuel Natural Gas (RLNG) effective Mar 2019.
Utility Boiler 1 & 2 Stack	Continuous Emission Monitoring Station (CEMS) is in place since November 25, 2021. The instrument has been supplied by M/s Vasthi Instruments. Auto calibration is available and hence needs no calibration externally.	Stack Height: Boiler stacks are built to comply with MINAS standards with sufficient height (70 M) so as to avoid the flue gas descending into the nearby area. Fuel conversion to RLNG: Job is in progress and expected to be completed by December 2022.

b) **Ambient Air Quality Monitoring :**

Continuous Ambient Air Quality Monitoring Stations (CAAQMS):

MFL has installed five Continuous Ambient Air Quality Monitoring Stations (CAAQMS) during September 2021 and also 11 nos of Ammonia Sensors have been installed in the peripheral of MFL by M/s Vasthi Instruments and the data are uploaded continuously since September 2020.

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8) By what means, that equipment is linked with State PCB and CPCB websites?

ANALYSER DETAILS:

Sl. No.	Parameter	Name of the Stack attached to / Location	Name of the Analyser	Principle of measurement	Make	Model No.	analyser Certified as USEPA/MCE RTS/TUV/Others	Measuring range	Unit of measurement	Emission Std. as per Consent Order
1	PM	NPK C Train	Opacity/PM analyser	Opacity	ACE GAS ANALYSERS	ACE10000 OT	Indigenous	0 - 1000 mg/m ³	mg/m ³	150
2	HF	NPK C Train	Lazer Analyser	TDLS	Siemens AG, Germany	LDS 6	TUV	0 - 500 mg/m ³	mg/m ³	25
3	NH ₃	Urea Prill Tower Demister	Lazer Analyser	TDLS	Siemens AG, Germany	LDS 6	TUV	0 - 1000 mg/m ³	mg/m ³	-
4	PM	PCB & Boiler IV (110 ATA)	Dust Monitor	Transmissometry (single pass dust monitor)	LKS, Malaysia	D10	TUV	0 - 500 mg/m ³	mg/m ³	150
5	NH ₃	NPK C Train	Gas Finder 3 DC	TDLS	Siemens AG, Germany	LDS 6	TUV	0 - 750 mg/m ³	mg/m ³	-


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6	PM	Boiler 1 & 2	Opacity Monitor	Lazer Back Scattered	Vasthi Instruments	VBDM-1500	TUV	0 - 500 mg/m ³	mg/m ³	150
7	SO ₂	Boiler 1 & 2	UV DOAS Gas analyser	UV DOAS	Vasthi Instruments	OMGA200 0UV	TUV	0-5000mg/m ³	mg/m ³	-
8	NO ₂	Boiler 1 & 2	UV DOAS Gas analyser	UV DOAS	Vasthi Instruments	OMGA200 0UV	TUV	0 - 1500 mg/m ³	mg/m ³	-

The above analyzers are connected to TNPCB/CPCB online servers.
Calibration and other details:

Source of emission	OCEMS		Connected to	Calibration	
	Prescribed by CPCB	Connected by Industry		Frequency	Latest Date
Urea Prill Tower	NH ₃	NH ₃	TNPCB & CPCB	Auto Calibration	NA
NPK C Train Stack	PM	PM	TNPCB & CPCB	Calibration done once in 3 months by OEM as per AMC	June. 2022
	HF	HF	TNPCB & CPCB		
	NH ₃	NH ₃	TNPCB & CPCB	Auto Calibration	NA
110 ATA & PC Boiler	PM	PM	TNPCB & CPCB	Auto Calibration	NA
Utility Boiler I & II	PM	PM	TNPCB & CPCB	Auto Calibration	NA
	SO ₂	SO ₂	TNPCB & CPCB		
	Nox	Nox	TNPCB & CPCB		


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9) What is stack height? What are the controlling measures does the Stack has?

All the stacks in MFL are as per MINAS standard.

S.No	Stack Name	Plant	Stack Height(in meters)
1	Prill Tower	Urea	72
2	110 ATA & PCB common stack	Ammonia	117
3	Boiler 1 & 2 common stack	Utility	70
4	NPK common stack	NPK 'C' Train	42

Action towards Protection of Environment:

- MFL has gone for a feed stock change from Naphtha to RLNG for the ammonia process.
- MFL has done the fuel conversion in 110 ATA & PC boiler.
- MFL has installed 11 new Electro Magnetic Flow Meters (EMFM) at various locations throughout MFL as per TNPCB direction.
- MFL develops green belt on continuous manner

Stack and Ambient Air quality monitoring by CPCB / TNPCB:

TNPCB & CPCB have their own monitoring stations installed in Manali for continuous monitoring of ambient air quality. All the parameters are well within the limits

TNPCB is also carrying out regular monitoring of stack emissions as per the schedule given below and the values were well within the prescribed limits

Plant	Sample Details	Frequency
Urea	Demister Off gas	Once in a Year
NPK C Train	Stack Emission	Once in a Year
Utility Boiler	Stack Emission	Once in a Year
110 Ata and Process Condensate	Stack Emission	Once in a Year

Ref.

Boiler		
DG Sets	Stack Emission	Once in a year

As we conclude, it may be observed from the above data that MFL has three layered strategies of identification, abatement and monitoring as a policy of its environmental care activities. In preceding years, several corrective actions were taken in the interest of environment protection. We have gone to the extent of changing the feedstock from fuel oil to RLNG for the sake of GO GREEN. We have implemented several monitoring mechanisms such as online continuous, classical monthly analyses, third party surveys and survey by statutory authorities.

Environmental Pollutants Monitoring Strategy

Category	Monitoring Parameters / Locations	Frequency
Continuous - Online	Ambient Air - 5 CAAQMS Stations	Continuous 24x7
	Ammonia - 11 Sensors along peripheral area	
	Urea Demister O/L - Ammonia Analyzer	
	NPK C Train Stack - PM & HF Analyzer	
	110 & PCB Stack - CEMS	
Classical - Periodical	Boiler I & II Stack - CEMS	Monthly Once Bi Monthly Once Every Shift Once in 6 Months Once in 6 Months Weekly Once Every Shift Every Month
	Ambient Air - 5 locations	
	Ambient Air - Work Environment	
	Demister Solution - Ammonia & Urea	
	Noise Level - 12 Locations	
	Ground Water Samples - 5 Locations	
	ETP & CETP Samples	
	HSP Samples for recycle	
	Urea Demister Off Gas - PM & Ammonia	
	NPK C Train Stack - PM, Ammonia & Fluorine	
Third Party Laboratory (MoEF recognized)	Ambient Air - 8 Locations	Once in a year
	Noise Level - 8 Locations	
	Boiler I & II Stack Emission	
	110 ATA & PCB Stack Emission	
	Demister Off Gas Emission	
	NPK C Train Stack Emission	
	DG Emission	
	Statutory Authority (DEL)	


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10. I submit that all the resulting data are being communicated to TNPCB and we always stay connected to the statutory authorities. As we all know, technology is not always conclusive and MFL asserts for up gradations from time to time in up keeping clean environment as our motto stands BETTER STILL BETTER.

11. I submit that Madras Fertilizers Limited is very much concerned about the environment protection and presents all out efforts in fulfilling the environmental commitments. It is evident from the continuous efforts and actions taken with allocation of huge expenses to the tune of 10 Crores after the year 2018 in implementing various directives of TNPCB either new installations or restoration of the existing ones amidst various financial and administrative constraints.

In the light of the above, it is therefore submitted that MFL has been complying with the Pollution norms.

Dated at Chennai on this 22th day of September, 2022

Counsel for 16th Respondent

VERIFICATION

I, Ram Ganesh, working as Company Secretary in M/s Madras Fertilizers Limited, the 16th Respondent herein, do hereby declare that what is stated in the above paragraphs are true and correct to the best of my knowledge, information and belief.

Verified at Chennai on this 22nd day of September, 2022

16th Respondent


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