



1.0 About the Industry

In 1971, The Fertilizer Corporation of India Ltd. (FCIL), set up Talcher Unit over an area of 902 acre in the district of Angul, Odisha which is located about 126 km away from Bhubaneswar to produce urea using coal as feed stock. Licensor for the Coal gasification was M/s Krupp Koppers, Germany and for Ammonia and Urea units Ammonia synthesis, M/s Tecnimont, Italy.

Commercial Production of Ammonia and Urea commenced on 01.11.1980 with Ammonia and Urea production capacity of 900 and 1500 Tons per day respectively. However due to frequent power restriction, obsolete and mismatch of technology and precarious steam balance the plant could not be sustained. The Board for Industrial and Financial Reconstruction (BIFR) declared the FCIL sick in 1992 and in 2002 Government of India initiated actions to close the company.

Due to shortage of domestic Urea and availability of large land banks, infrastructure and tied-up rail, water & electricity in the units of FCIL, GoI in the year 2007 decided to revive all units of FCIL. Government of India approved Policy for new Investments in the Urea Sector in September 2008 and constituted Empowered Committee of Secretaries (ECOS) in October 2008 with the mandate to evaluate all options of revival of closed units of FCIL/HFCL and to make suitable recommendations for consideration of the Government.In August, 2011, the Cabinet Committee on Economic Affairs (CCEA) had approved the Draft Rehabilitation Scheme (DRS) for revival of all the Units of FCIL and HFCL. DRS envisaged revival of Talcher Unit by the consortium of M/s.Rashtriya Chemical & Fertilizers Limited (RCF), M/s Coal India Limited (CIL) and M/s GAIL (India) Ltd. (GAIL).

2.0 About the Report

TFL received environmental clearance from MoEF&CC (F. No. J-11011/231/2013-1A-II(I) dated 9th February, 2018) for Setting up Ammonia & Urea Fertilizer Unit at Village Vikrampur, Tehsil Talcher, DistrictAngul (Odisha); under the provisions of EIA Notification, 2006 and the amendments made therein, subject to the compliance of terms and conditions (**Annexure 1**):



According to the suggestion given by MoEF&CC, six-month environmental status report should be furnished to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. In this regard, the environmental monitoring was carried out by CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur for the period of July 2020 to September 2020. Due to lockdown, environmental monitoring was not carried out from April –July 2020. The report is formulated based on the data provided by CSIR-NEERI.

3.0 EC Compliance Form

Compliance status of EC terms and conditions

Sr. No.	EC Terms and Conditions	Compliance Status
(i)	In view of the base line air quality data for PM ₁₀ already exceeding the prescribed standards, one more season data to be collected to confirm the consistency of readings/values, and for suggesting mitigating measures accordingly.	 Monitoring of PM10 has been completed for the period April to September-2018. Copy of the same is enclosed in this report.
(ii)	The project proponent shall, take stringent mitigating measures to minimize the incremental concentration of air pollutants (mainly PM ₁₀ & PM _{2.5}) to the extent possible due to the proposed industrial operations.	 As the monitored results are well within the specified limits no additional measures are proposed to be installed.
(iii)	The project proponent shall develop local air quality management plan in consultation with SPCB and implemented to achieve desired standards.	Compliance Assured
(iv)	The incremental ground level concentrations (GLCs) for PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂ due to the increased vehicular and other allied / developmental activities, shall be analysed and reported for actual impact of the project, besides remedial measures.	 Compliance Assured To check the incremental increase in air pollutants during construction phase, two monitoring stations were selected in the project site. The data is included in this report. As indicated in EIA the major transport of raw material will be by conveyor and hence no impact on GLC due to transport is expected.
(v)	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air	 Procedure for getting Consent to Establish is initiated.



	(Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	
(vi)	As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.	 Feasibility study for ZLD will be undertaken and appropriate treatment/recycling method will be selected to an achieve ZLD.
(vii)	Necessary authorization required under the Hazardous and 0ther Wastes (Management and Trans-Boundary Movement) Rules, 2016, Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.	Compliance Assured. It will be obtained in consent to operate.
(viii)	National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G,S,R, 608(E) dated 21st July, 2010 and amended from time to time shall be followed.	Compliance Assured
(ix)	To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/or the NMQS. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.	 Plants will be designed with state of Art technologies with inbuilt pollution control systems so that the prescribe norms and fugitive emissions will be under control.
(x)	Total fresh water requirement shall not exceed 49200 cum/day to be met from surface water from Brahmini River. Prior permission in this regard shall be obtained from the concerned regulatory authority.	 Fresh Water source will be received from the stipulated source. And all necessary permissions will be ensured prior to installation of the project.
(xi)	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Compliance Assured.
(xii)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc, Flame arresters shall be provided on tank farm, and solvent transfer through pumps.	Compliance Assured.
(xiii)	ETP sludge, process inorganic & evaporation salt, if any, shall be disposed off to the TSDF.	Compliance Assured
(xiv)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals	Compliance Assured.



	(MSIHC) Rules, 1989 as amended time to	
	time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	
(xv)	The company shall undertake waste minimization measures as below: -	Compliance Assured.
(a)	Metering and control of quantities of active ingredients to minimize waste.	
(b)	Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	
(c)	Use of automated filling to minimize spillage,	
(d)	Use of Close Feed system into batch reactors.	
(e)	Venting equipment through vapour recovery system.	
(f)	Use of high pressure hoses for equipment clearing to reduce wastewater generation.	
(xvi)	The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	 The project activities will be implemented in existing site of TFL with lot of greenery and the guide line of 33% area under greenbelt out of total project area will be achieved.
(xvii)	All the commitment made regarding issues raised during the Public Hearing/consultation meeting held on 30h August ,2017 shall be satisfactorily implemented.	 CSR dept. will keep aside a sum for CSR activities for project to meet public hearing requirement to the practical extent possible for an industrial unit.
(xviii)	At least 2.5% of the total project cost shall be allocated for Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	Compliance Assured.
(xix)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines, Acoustic enclosure shall be provided to DG set for controlling the noise pollution,	Compliance Assured.
(xx)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	Compliance Assured.



(xxi)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	 HR and OHC Dept. will conduct regular health checkups and records for the same will be maintained as per the Factories Act.
(xxii)	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.	Compliance Assured.

Compliance of other generic conditions

Sr. No.	EC proposal	Compliance Status
(i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority.	Compliance assured.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Compliance Assured.
(iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is Installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	Compliance assured.
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G,S.R. No. 826(E) dated 16th November, 2009 shall be followed,	Compliance assured.
(v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all	Compliance assured.



	sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection)Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).		
(vi)	The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	•	Compliance assured.
(vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.		Training on safety and health aspects of handling of chemicals used and MSDS will be imparted regularly.
(viii)	The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	•	Compliance assured
(ix)	The company shall undertake all relevant measures for improving the socioeconomic conditions of the surrounding area. ESC activities shall be undertaken by involving local villages and administration.	•	CSR activities shall be undertaken by involving local and other stake holders.
(x)	The company shall undertake eco developmental measures including community welfare measures in the project area for the overall improvement of the environment.	•	Greenery development in the area will be undertaken. Activities shall be undertaken for Developmental measures for welfare of overall environment.
(xi)	The. company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management pollution control measures shall not be diverted for any other purpose,	•	Compliance assured



(xii)	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad /Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.	Complied.
(xiii)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of .Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.	Compliance assured. We are submitting first six monthly compliance report for the TFL joint venture project.
(xiv)	The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail,	This will be complied after commencement of commercial production.
(xv)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http:l/moef.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local, newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	Compliance done. Communicated on In local Odiya newspaper and English newspaper. i) Oriya on date 16.02.2018 in Samaj (Angul Edition) ii) English on date 15.02.2018 in New Indian Express (Bhubaneswar Edition) Copy of the same is enclosed in Annexure 3 .
(xvi)	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	This will be complied with. Presently, the site preparation work is under progress.



4.0 Compliance report for EC condition 9(i): In view of the base line air quality data for PM₁₀ already exceeding the prescribed standards, one more season data to be collected to confirm the consistency of readings/values, and for suggesting mitigating measures accordingly.

The baseline status with respect to ambient air quality has been established through a scientifically designed ambient air quality monitoring network based on the following considerations:

- Meteorological conditions prevailing within study area;
- Topography of the study area;
- Representatives of background air quality; and
- · Representatives of likely impact areas.

Air Quality monitoring has been conducted at eight sampling locations during the pre- Post- monsoon season (July to September 2020). The location of ambient air sampling stations has been presented below in **Table 1**.

Table 1: Details of sampling locations

SI. No	Location Name	With respect to Project Site		
		Dir.	Distance	
01.	Tech. Building of FCI	-	-	
02.	Housing Board Colony	ENE	1.2 km	
03.	Karnpur village	W	4.5 Km	
04.	TFL Guest House	-	-	
05.	Balanda village	NW	2.5 Km	
06.	Kukudanga village	SW	2.5 km	

Salient features of the observations made with respect to PM10 during the study period are summarized below in **Table 2** as under:



Table 2: Summary of PM₁₀concentrations (μg/m³) (July- September 2020)

Sampling Location	Min.	24-hr Average	Max.	NAAQS for PM ₁₀ μg/m ³
Technical Building of FCI	42	55	65	100
Housing Board Colony	54	62	67	
Karnpur village	51	57	69	
TFL Guest House	52	65	74	
Balanda village	84	102	110	
Kukudanga village	34	51	82	

The average concentrations of PM10 at all the six sampling locations were observed in the range of 51 to $102\mu g/m^3$. It has been observed that the minimum value of $51\mu g/m^3$ has been observed at Kukudanga village, whereas the maximum value of $102\mu g/m^3$ was observed at Balanda Village

4.0 Compliance report for EC condition 9(iv):The incremental ground level concentrations (GLCs) for PM₁₀, PM_{2.5}, SO₂& NO₂ due to the increased vehicular and other allied / developmental activities, shall be analysed and reported for actual impact of the project, besides remedial measures.

Construction activities were started in the beginning of August 2018. Reconnaissance was undertaken to establish the existing status of air environment in the study region. Ambient Air Quality Monitoring (AAQM) locations were selected based on guidelines of network siting criteria based on meteorological data of Post- monsoon season (July to September, 2020). The ambient air quality monitoring was carried out in the study area of 10 km radial distance around the proposed site, details of these locations are presented in **Table 3**.Administrative building, Bikrampur housing board colony and guest

houses are near to the proposed project site. The average values of PM_{10} , $PM_{2.5}$, SO_2 and NO_2 are given in **Table 4 and 5**.

Table 3: Details of Air Quality Monitoring Locations (Post-monsoon Season –July to September 2020)

(1 OSt- monsoon deason – only to deptember 2020)				
Sr. No.	Sample Code	Sampling Locations	Geographical Position	
1.	TFL/A1	Administrative Building TFL	20°54'42.8" N 85°09'38.4" E	
2.	TFL/A2	Housing Board Colony, Bikrampur	20°54'19.3" N 85°10'20.2" E	
3.	TFL/A3	Village Karnapur	20°54'26.4" N 85°07'06.1" E	
4.	TFL/A4	TFL-Guest House	20°54'14.8" N 85°09'56.9" E	
5.	TFL/A5	Village Balanda	20°55'31.0" N 85°09'26.8" E	
6.	TFL/A6	Village Kukudanga	20°53'23.3" N 85°08'50.8" E	

Table 4 Air Quality Status (PM₁₀) within the Study Area
Units: μg/m³ Average: 24 hrs.

PM ₁₀ Sr. Sampling Location No. July August September 2020 2020 2020 Administrative Building TFL 1 42 59 65 2 Housing Board Colony, 54 67 66 Bikrampur 3 Village Karnapur 52 51 69 4 TFL-Guest House 52 70 74 5 Village Balanda 84 110 96 6 Village Kukudanga 42 34 39 **Permissible limits** 100

Table 4 Air Quality Status (PM_{2.5}) within the Study Area

Units: μg/m³ Average: 24 hrs.

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Sr. No.	Sampling Location	PM _{2.5}			
		July 2020	August 2020	September 2020	
1	Administrative Building TFL	38	49	23	
2	Housing Board Colony, Bikrampur	47	24	27	
3	Village Karnapur	31	9	34	
4	TFL-Guest House	43	25	23	
5	Village Balanda	54	87	47	
6	Village Kukudanga	29	24	23	
	Permissible limits	60			

Table 5 Air Quality Status (SO₂) within the Study Area Units: μg/m³

Units: µg/m³ Average: 24 hrs.

Sr. No.	Sampling Location	SO ₂		
		July 2020	August 2020	September 2020
1	Administrative Building TFL	11	34	32
2	Housing Board Colony, Bikrampur	14	39	39
3	Village Karnapur	8	23	21
4	TFL-Guest House	9	43	43
5	Village Balanda	12	54	54
6	Village Kukudanga	6	42	42
	Permissible limits		80	

Table 5 Air Quality Status (NO₂) within the Study Area Units: μg/m³

Units: μg/m³ Average: 24 hrs.

Sr. No.	Sampling Location	NO ₂			
		July 2020	August 2020	September 2020	
1	Administrative Building TFL	64	56	54	
2	Housing Board Colony, Bikrampur	62	52	53	
3	Village Karnapur	36	40	39	

	Permissible limits	80			
6	Village Kukudanga	28	43	41	
5	Village Balanda	14	88	87	
4	TFL-Guest House	51	57	58	

Table 5 Air Quality Status (NH₃) within the Study Area Units: μg/m³

Units: μg/m³

Average: 24 hrs.

	onits. μg/m	Avelage. 24 illo.			
Sr. No.	Sampling Location	NH ₃			
		July 2020	August 2020	September 2020	
1	Administrative Building TFL	39	33	32	
2	Housing Board Colony, Bikrampur	15	35	36	
3	Village Karnapur	9	38	38	
4	TFL-Guest House	20	38	38	
5	Village Balanda	14	56	56	
6	Village Kukudanga	17	38	34	
	Permissible limits		400		

Baseline data provided in the EIA report clearly states that PM_{10} and $PM_{2.5}$ concentrations in the buffer area of proposed project site is quite high. PM_{10} and $PM_{2.5}$ concentrations in Balanda were found to be exceeding permissible limits in the month of August due to the site being close to coal mining areas.

, NO_2 concentrations exceeded the permissible limits in the months of August and September at Balanda. Slight variations in SO_2 and NH_3 were observed during the study period. However, all the values were within the permissible limits.

The detailed air monitoring report is enclosed as **Annexure 2**.

Annexure 1 Environmental Clearance Letter



F. No. J-11011/231/2013-IA-II(I) Government of India Ministry of Environment, Forest and Climate Change (IA- II Section)

Indira Paryavaran Bhawan Jorbagh Road, New Delhi -3

Dated: 9th February, 2018

Τо

M/s Talcher Fertilizers Ltd Village Vikrampur, Tehsil Talcher District <u>Angul</u> (Odisha)

Sub: Setting up Ammonia & Urea Fertilizer Unit at Village Vikrampur, Tehsil Talcher, District Angul (Odisha) by M/s Talcher Fertilizers Ltd - Environmental Clearance - reg.

Sîr,

This has reference to your proposal No. IA/OR/IND2/58560/2013 dated 11th October, 2017, submitting the EIA/EMP report with public consultation details on the above subject matter.

- The Ministry of Environment, Forest and Climate Change has examined the proposal for environmental clearance to the project for setting up ammonia & urea fertilizer unit based on coal gasification for production of 1.27 MMTPA of neem coated urea (end product) by M/s Talcher Fertilizers Ltd at Village Vikrampur, Tehsil Talcher, District Angul (Odisha).
- The total land area of the project is 570 acre, out of which green belt will be developed in 180 acre. The cost of the project is Rs.10741.05 Crores. The project will provide employment to 1500 people during construction phase.
- The proposed product/unit and capacity are as under:

S.No	Product/Unit	Capacity
1	Ammonia	2200 MTPD
2	Urea (Neem coated)	3850 MTPD
3	Coal Gasification Plant	Synthesis Gas: 242978 Nm3/hr

 Total water requirement for the project is 49,200 m³/day. The permission for drawal of surface water from Brahmini River has been obtained from the State Government of Odisha vide letter No. 1513/SF/59 dated 3rd November, 2009.

The power requirement of 72 MW will be met from the Captive Power Plant. The raw Material required for the project are Coal, Pet Coke and lime stone. During initial stages of operation of the plant, coal shall be supplied through Bhubaneswari Coal Mine of M/s Mahanadi Coalfields Ltd. Later, the project proponent shall develop the dedicated coal mine for the procurement of coal in the desired quantity.

- 6. The project/activity is covered under category A of item 5(a) 'Chemical fertilizers' of the Schedule to the Environment Impact Assessment Notification, 2006, and requires appraisal at central level by the sectoral Expert Appraisal Committee in the Ministry.
- 7. The terms of reference (ToR) for the project was initially granted on 26th November, 2013, and then extended up to 25th November, 2017. The ToR was transferred in the name of M/s Talcher Fertilizers Ltd from M/s Rashtriya Chemicals & Fertilizers Ltd, vide Ministry's letter dated 27th September, 2017. Public hearing was conducted by the State Pollution Control Board on 30th August, 2017.



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- 8. The proposal for environmental clearance was considered by the EAC (Industry-2) in its meeting held on 12-13 October, 2017. The project proponent and the accredited consultant M/s Projects & Development India Ltd presented the EIA/EMP report. The committee found the EIA/EMP report satisfactory and recommended the proposal for environmental clearance with certain conditions.
- 9. Based on the proposal submitted by the project proponent and recommendations of the EAC (Industry-2), the Ministry of Environment, Forest and Climate Change hereby accords environmental clearance to the project 'Setting up Ammonia & Urea Fertilizer Unit for production of 1.27 MMTPA of Neem Coated Urea (end product)' by M's Talcher Fertilizers Ltd at Village Vikrampur, Tehsil Talcher, District Angul (Odisha), under the provisions of EIA Notification, 2006 and the amendments made therein, subject to the compliance of terms and conditions, as under:-
- (i) In view of the base line air quality data for PM₁₀ already exceeding the prescribed standards, one more season data to be collected to confirm the consistency of readings/values, and for suggesting mitigating measures accordingly.
- (ii) The project proponent shall take stringent mitigating measures to minimize the incremental concentration of air pollutants (mainly PM₁₀ & PM₂₅) to the extent possible due to the proposed industrial operations.
- (li) The project proponent shall develop local air quality management plan in consultation with SPCB and implemented to achieve desired standards.
- (iv) The incremental ground level concentrations (GLCs) for PM₁₀, PM₂₅, SO₂ & NO₂ due to the increased vehicular and other allied/developmental activities, shall be analysed and reported for actual impact of the project, besides remedial measures.
- (v) Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
- (vi) As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/breated water shall be discharged outside the premises.
- (vii) Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016, Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.
- (viii) National Emission Standards for Organic Chemicals Manufacturing Industry Issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended from time to time shall be followed.
- (ix) To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/or the NAAQS. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.
- (x) Total fresh water requirement shall not exceed 49200 cum/day to be met from surface water from Brahmini River. Prior permission in this regard shall be obtained from the concerned regulatory authority.
- (xi) Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- (xii) Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer through pumps.
- (xiii) ETP sludge, process Inorganic & evaporation salt, if any, shall be disposed off to the TSDF.



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- (xiv) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.
- (xv) The company shall undertake waste minimization measures as below:-
 - (a) Metering and control of quantities of active ingredients to minimize waste.
 - (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
 - (c) Use of automated filling to minimize spillage.
 - (d) Use of Close Feed system into batch reactors.
 - (e) Venting equipment through vapour recovery system.
 - Use of high pressure hoses for equipment clearing to reduce wastewater generation.
- (xvi) The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.
- (xvii) All the commitment made regarding issues raised during the Public Hearing/consultation meeting held on 30th August, 2017 shall be satisfactorily implemented
- (xviii) At least 2.5% of the total project cost shall be allocated for Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.
- (xix) For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.
- (xx) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.
- (xxi) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- (xxii) Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.
- 9.1. The grant of environmental clearance is subject to compliance of other general conditions, as underc-
- The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority.
- (ii) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- (iii) The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.



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- (iv) The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.
- (v) The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- (vi) The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- (vii) Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- (viii) The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.
- (ix) The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. ESC activities shall be undertaken by involving local villages and administration.
- (x) The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- (xi) The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- (xii) A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
- (xiii) The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posled on the website of the company.
- (xiv) The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental dearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.
- (xv) The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://moef.nic.ln. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular



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- language of the locality concerned and a copy of the same shall be forwarded to the concerned. Regional Office of the Ministry.
- (xvi) The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
- The Ministry may revoke or suspend the clearance, at subsequent stages, if implementation of any of the above conditions is not satisfactory.
- The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.
- 12. The above conditions will be enforced, inter alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

(S. K. Srivastava) Scientist E

Copy to:-

- The Additional PCCF (C), MoEF&CC Regional Office (EZ), A/3, Chandersekharpur, Bhubaneswar -23 (Odisha)
- The Secretary, Department of Forest and Environment, Government of Odisha, Bhubaneswar (Odisha)
- The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
- The Member Secretary, Odisha State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII, Bhubaneswar -12 (Odisha)
- Guard File/Monitoring File/Website/Record File

(S. K. Srivastava) Scientist E

Annexure 2 Air Quality Monitoring Report (July-September 2020)

1.0 Methodology adopted for Air Quality monitoring

The baseline status with respect to ambient air quality has been established through a scientifically designed ambient air quality monitoring network based on the following considerations:

- Meteorological conditions prevailing within study area;
- Topography of the study area;
- · Representatives of background air quality; and
- Representatives of likely impact areas.

Air Quality monitoring has been conducted at eight sampling locations during the Post- monsoon season (July to September 2020).

2.0 Sampling Period, Frequency & Parameters

The following air pollutants were monitored on 24-hourly basis for consecutive two days in a week for a period of six months from October 2018 to March 2019:

- Particulate matter(PM10)
- Particulate matter(PM2.5)
- Sulphur Dioxide
- Nitrogen Dioxide
- Ammonia

2.1 Sampling & Analytical Procedure

A brief description of the sampling and analytical procedures followed during the ambient air quality monitoring is as follows:

Particulate Matter (PM₁₀):



The sampling of ambient air for evaluating PM10 levels were performed with a FPS Sampler for separation of particles larger than 10 microns diameter. Air exiting the separator is drawn at a measured rate through pre-weighed PTFE glass fiber filters. The PM10 concentrations were computed from the average air flow rate, sampling period and the mass of particulate matter collected over the filter surface.

Particulate Matter (PM2.5)

PM2.5 is determined as per USEPA (United State Environment Protection Agency) guidelines with the help of Fine Dust Sampler. Ambient air is allowed to pass through Louvered inlet and impactor as well as particulate matter of size <2.5 microns is deposited on 46.2 mm dia PTFE filter paper. The difference of final weight of filter and initial weight gives the weight of particulate matter of size <2.5 microns. The concentration of PM2.5 is computed with the help of dust deposited on the filter, volume of air sampled monitoring temperature and barometric pressure.

Gaseous sampling

Gaseous sampling was carried out by using particular absorbing medias for each gas and standard procedures were followed to analyse the samples and obtain results.

2.2 Details of sampling locations

The location of ambient air sampling stations has been presented below in Table-1.

TABLE – 1 Details of Sampling Locations

SI. No	Location Name	With respect to Project S	
		Dir.	Distance
01.	Tech. Building of FCI	-	-
02.	Housing Board Colony	ENE	1.2 km

03.	Karnpur village	W	4.5 Km
04.	TFL Guest House	-	-
05.	Balanda village	NW	2.5 Km
06.	Kukudanga village	SW	2.5 km

2.3 Techniques for Measurement

The techniques used for measurement of pollutants may be summarized as under:

<u>TABLE - 2</u>MEASUREMENT TECHNIQUES

Sr. No.	Air Quality Parameter	Unit	Analytical Method used for Testing/Analysis	Analytical Measurement Range	Standard value as per NAAQs, 2009 and Monitoring duration
1.	Particulate Matter size < 10 microns or PM ₁₀	μg/m³	Gravimetric IS-5182: Part-23, 2006	5-5000	100 (24 h)
2.	Particulate Matter size < 2.5 microns or PM _{2.5}	μg/m³	Gravimetric U.S.EPA EQM-0308-170	5-500	60 (24 h)
3.	Sulphur Dioxide (SO ₂)	μg/m³	EPA Improved West and Gaeke Method IS-5182: Part-2, 2001	5-1000	80 (24 h)
4.	Nitrogen Dioxide (NO ₂)	μg/m³	Modified Jacobs- Hachheiser Method IS-5182: Part-6, 2006	7-750	80 (24 h)
5.	Ammonia (NH ₃)	μg/m³	Indophenol Blue method Method 401: Methods of Air Sampling and analysis, James P. Lodge	5-1000	400 (24 h)
6.	Benzene (C ₆ H ₆)	μg/m³	GC based continuous analyzer IS-5182: Part- 11, 2006	0.01-10	5.0 (Annual)
7.	VOCs	µg/m³	U.S. EPA Method TO17: 1999	0.01-10	0.01-500 (Annual)
8.	Hydrocarbons	µg/m³	HC Analyzer for Spot Concentration	0.01 – 10	-

3.0 Discussion on Air Quality Monitoring

The observations made at all the six sampling stations during the study period are presented through Tables 3 to 12. In each of these tables, minimum, maximum, average have been computed and presented.

<u>PM</u>₁₀

Salient features of the observations made with respect to PM_{10} during the study period are summarized below in Table – 3 as under:

TABLE - 3SUMMARY OF PM₁₀ CONCENTRATIONS (µg/m³)

Sampling Location	Min.	24-hr Avera ge	Max.	Air Quality Index (AQI)	NAAQS for PM ₁₀ μg/m ³
TFL Admin Building	42	55	65	Satisfactory	100
H.B. Colony	54	62	67	Satisfactory	100
Karnapur village	51	57	69	Satisfactory	100
TFL Guest House	52	65	74	Satisfactory	100
Balanda village	84	102	110	Satisfactory	100
Kukudanga village	34	51	82	Satisfactory	100

The average concentrations of PM_{10} at all the six sampling locations were observed in the range of 51 to $102\mu g/m^3$. PM_{10} average concentration in Balanda was found to be above permissible limit of $100\mu g/m^3$. Among other sampling sites it would not be out of place to mention here that although there are few observations which are above prescribed limit, yet the average concentration of PM_{10} was observed to be well below $100 \mu g/m^3$, which is the ambient air quality standard for industrial, residential and rural area.



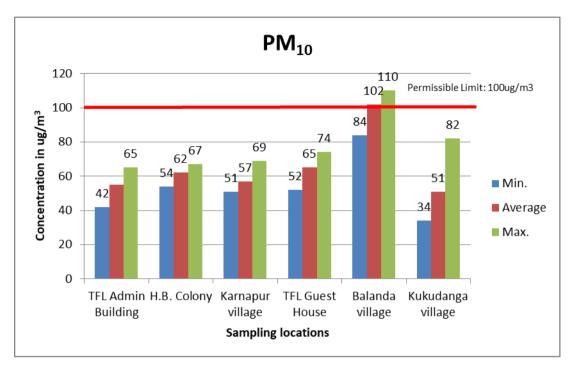


Figure-3 Graph showing Variation of PM10 during study period from July to September 2020

The 24-hr average value of PM10 is above permissible limit in Balanda site. Rest locations are below the limit prescribed under NAAQ Standard.

PM_{2.5}

Salient features of the observations made with respect to $PM_{2.5}$ during the study period are summarized below in Table - 4 as under:

TABLE - 4 SUMMARY OF PM_{2.5} CONCENTRATIONS (μg/m³)

Sampling Location	Min.	24-hr Average	Max.	Air Quality Index (AQI)	NAAQS for PM _{2.5} μg/m ³
TFL Admin Building	23	37	49	Satisfactory	60
H.B. Colony	24	33	47	Satisfactory	60
Karnapur village	23	27	34	Satisfactory	60
TFL Guest House	23	30	43	Satisfactory	60
Balanda village	47	63	87	Satisfactory	60
Kukudanga village	23	25	29	Satisfactory	60

The average concentrations of $PM_{2.5}$ at all the six sampling locations were observed in the range of 25 to $63\mu g/m^3$. It has been observed that the minimum value has been observed at Kukudanga, whereas the maximum value of $63\mu g/m^3$ was observed at Balanda village. The average concentration of $PM_{2.5}$ was observed to be in Balanda, other sampling sites showed concentrations well below $60\mu g/m^3$, which is the ambient air quality standard for industrial, residential and rural area.



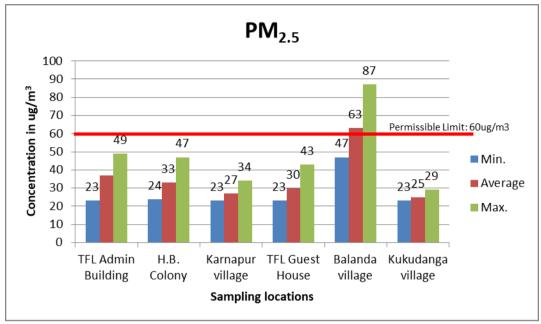


Figure-4 Graph showing variation of PM2.5 during study period from July to September 2020

The 24-hr average value of PM2.5 is above permissible limit in Balanda site. Rest locations are below the limit prescribed under NAAQ Standard.

<u>SO₂</u>

Salient features of the observations made with respect to SO₂ during the study period are summarized below in Table - 4 as under:

TABLE - 4 SUMMARY OF SO₂ CONCENTRATIONS (µg/m³)

Sampling Location	Min.	24-hr Average	Max.	Air Quality Index (AQI)	NAAQS for SO ₂ μg/m ³
TFL Admin Building	11	26	34	Satisfactory	80
H.B. Colony	14	31	39	Satisfactory	80
Karnapur village	8	17	23	Satisfactory	80
TFL Guest House	9	32	43	Satisfactory	80
Balanda village	12	40	54	Satisfactory	80
Kukudanga village	6	30	42	Satisfactory	80

The average concentrations of SO_2 at all the six sampling locations were observed in the range of 17 to $40\mu g/m^3$. It has been observed that the minimum value has been observed at Karnapur village, whereas the maximum value was observed at Balanda. The average concentration of SO_2 was observed well below $80\mu g/m^3$, which is the ambient air quality standard for industrial, residential and rural area.



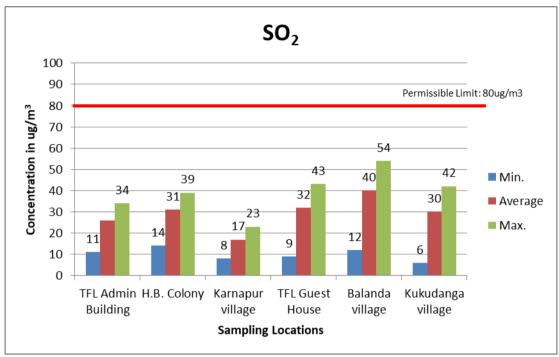


Figure-4Graph showing variation of SO2 during study period from July to September 2020

The 24-hr average value of SO2 is below the limit prescribed under NAAQ Standard.

$\underline{\mathsf{NO}_2}$

Salient features of the observations made with respect to NO₂ during the study period are summarized below in Table - 4 as under:

TABLE - 4 SUMMARY OF NO₂ CONCENTRATIONS (µg/m³)

Sampling Location	Min.	24-hr Average	Max.	Air Quality Index (AQI)	NAAQS for NO ₂ μg/m³
TFL Admin Building	54	58	64	Satisfactory	80
H.B. Colony	52	56	62	Satisfactory	80
Karnapur village	36	38	40	Satisfactory	80
TFL Guest House	51	55	58	Satisfactory	80
Balanda village	14	63	88	Satisfactory	80
Kukudanga village	28	37	43	Satisfactory	80

The average concentrations of NO_2 at all the six sampling locations were observed in the range of 37 to $63\mu g/m^3$. It has been observed that the minimum value has been observed at Kukudanga village, whereas the maximum value of was observed at Balanda village. The average concentration of NO_2 was observed well below $80\mu g/m^3$, which is the ambient air quality standard for industrial, residential and rural area.



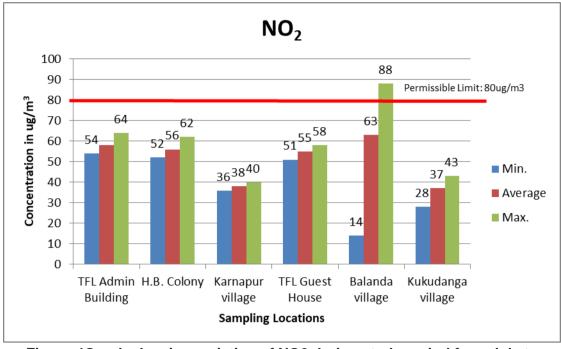


Figure-4Graph showing variation of NO2 during study period from July to September 2020

The 24-hr average value of NO2 is below the limit prescribed under NAAQ Standard.

<u>NH</u>₃

Salient features of the observations made with respect to NH₃ during the study period are summarized below in Table - 4 as under:

TABLE - 4 SUMMARY OF NH₃ CONCENTRATIONS (µg/m³)

Sampling Location	Min.	24-hr Average	Max.	Air Quality Index	NAAQS for NH₃
				(AQI)	μg/m³
TFL Admin Building	32	35	39	Satisfactory	400
H.B. Colony	15	29	36	Satisfactory	400
Karnapur village	9	28	38	Satisfactory	400
TFL Guest House	20	32	38	Satisfactory	400
Balanda village	14	42	56	Satisfactory	400
Kukudanga village	17	30	38	Satisfactory	400

The average concentrations of NH_3 at all the six sampling locations were observed in the range of 28 to $42\mu g/m^3$. It has been observed that the minimum value has been observed at Karnapur village, whereas the maximum value was observed at Balanda. The average concentration of NH_3 was observed well below $400\mu g/m^3$, which is the ambient air quality standard for industrial, residential and rural area.



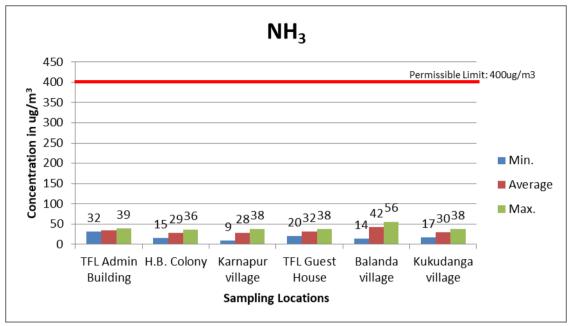


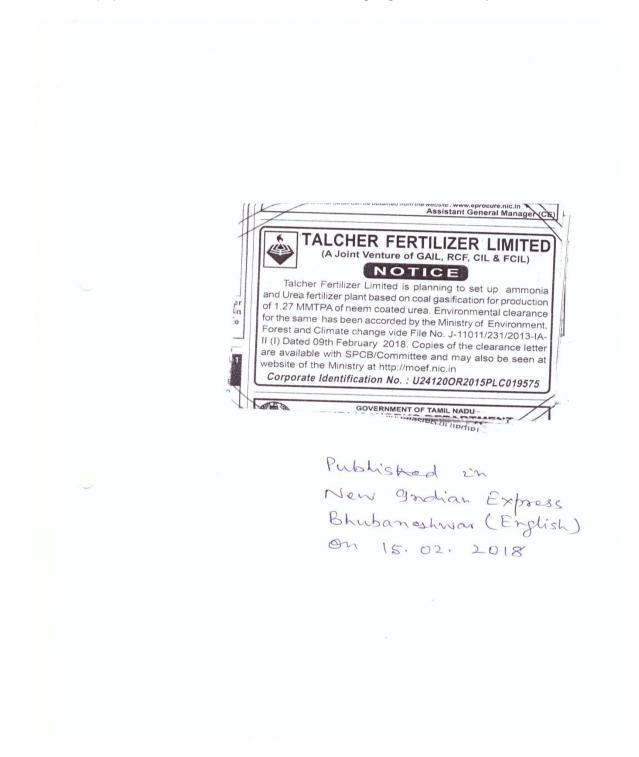
Figure-4Graph showing variation of NH3 during study period from July to September 2020

The 24-hr average value of NH3 is below the limit prescribed under NAAQ Standard.

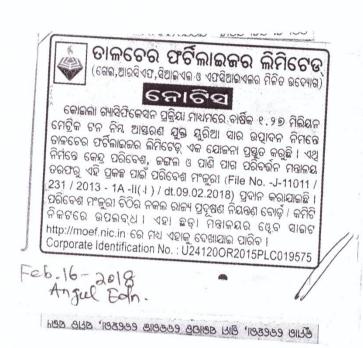


ANNEXURE -III

The project proponent shall inform the public that the project has been accorded Advertisement of environmental clearance by the Ministry has been advertised in two local newspapers in which one is the vernacular language of the locality concerned.







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