ENVIRONMENT STATEMENT
2024-25

M/s. PARADEEP PHOSPHATES LIMITED
PPL TOWNSHIP
PARADEEP - 754145
JAGATSINGHPUR, ODISHA

INTRODUCTION:

M/s. Paradeep Phosphates Limited is located at Paradeep in Jagatsinghpur District, Orissa. It is 90kms from Cuttack. The Plant site is located at 20º16'56" North Latitude and 86º38'52" East Longitude, west side of Paradeep Port as indicated in the Toposheet Map. The plant encompasses 950 hectares of area. Mahanadi River is 5km from the plant site and meets Bay of Bengal, which is 5.3 km away from the site. Atharbanki creek is flowing along the boundary wall of the site and is in between Paradeep Port site and the factory.

Paradeep Phosphates Limited (PPL) incorporated in 1981 was initially a joint venture between the Government of India and the Republic of Nauru and subsequently changed into a wholly owned Government of India Enterprise. After disinvestment by the Government of India in February, 2002, the management of the company is with the fertilizer majors Zuari-Chambal Group and OCP Morocco. PPL is a prime player in the Phosphatic Fertilizers which have applications in a wide range of crops.

M/s. PPL is facilitated to produce 1.9 MMTPA of complex Phosphatic fertilizer , 1.452 MMTPA of Sulphuric acid, 0.681 MMTPA of Phosphoric acid and 55 MW of captive power to meet the need of valued customers. The fertilizer complex is using imported Sulphur and rock phosphate to produce Sulphuric acid and Phosphoric acids respectively. The captive production of Phosphoric acid can not cater to four streams of DAP plant. Part of phosphoric acid requirement is met through imports. The requirement of ammonia is met through import. The Plant has obtained Consent to Operate (CTO) from SPCB, Odisha for its entire Plant, valid up to 31st March, 2027.

M/s. PPL has taken steps towards the *Co-Generation of the waste heat recovery for their Captive Power Generation by utilizing the waste steam generated from the Sulphuric acid Plant. Sulphuric acid plant-C is designed with new HRS technology to utilize the heat for production of steam.*

M/s. PPL has certified by ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 50001, Protect & Sustain & 5S certifications with Integrated Management System (IMS) and certified with Responsible Care for its good management systems; thus implying that along with technical advancement, the company also values maintaining and working towards a clean and safe environment. ***Paradeep Phosphates Limited has established a full-fledged Environment Management Laboratory certified with ISO/IEC 17025:2017 latest version and accredited by National Accreditation Board for Testing and calibration Laboratories (NABL), QCI, Govt. of India.***

Paradeep Phosphates Limited is functioning since inception with its policy ***"To strive for an Environment of beyond compliance in plants and to raise Environmental awareness in the neighboring community"***. PPL is also adopted environmentally sound technologies and management practices for "optimum utilization and conservation of natural resources."

M/s. PPL has adopted various state of arts technologies in Phosphatic fertilizers, Sulphuric Acid, Phosphoric Acid and Zypmite production at the site, equipped with best Pollution Control Equipments (PCE's) to control the pollution at source, also controlling the solid and liquid wastes by adopting the recycle and reuse process. M/s. PPL has shown its endeavor towards philosophy of "Sustainable Development". In addition to this a separate dedicated Environment Management Department is there, which is showing its impactful performance for environmental monitoring on regular basis to maintain the clean and green environment in and around the plant premises.

M/s. PPL is deeply committed for the development and welfare of the larger community in its area of operations. The company continues its tremendous efforts for rural uplifting with a host of programmes and interventions. A dedicated CSR team is working for the socio-economic development of the surrounding villages. PPL is arranging medical camps, agricultural training, and women empower training and children development plan etc.

PPL has its own Sewage Treatment Plant (STP) with a treatment capacity of 150 m^3/Hr. based on activated sludge process. Similarly one Effluent Treatment Plant (ETP) is installed; having 200 m^3/Hr. effluent water treatment capacity. The treated water is being reused in ball mill process & also utilized in gardening purpose. PPL is giving attention for recycling of all the solid waste (by products) generated from the process as filler in the process. Large quantity of Phospho-Gypsum is being sold to the farmers for their soil treatment and to cement industries also. A Gypmite plant of capacity 240 TPD is installed and commissioned to use huge quantity of Phospho-gypsum for the production of micronutrient fertilizer Gypmite. Apart from this PPL has installed Ammonia flare stack and Fluorine Recovery Unit. Mechanized wheel washing system is installed to prevent fugitive dust pollution though transportation heavy vehicles.

M/s. PPL has planted more than 6.97 Lakhs trees in and around the plant premises, colony & road sides of Gypsum pond area. About 40% of total area is covered with bushy plantation.

FORM -V

FORM – V

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR
ENDING ON 31st MARCH' 2025

PART – A

i) Name and address of the Owner/ Occupier of the industry, operation or process: : Mr. N Suresh Krishnan
M/s. Paradeep Phosphates Ltd.
PPL Township,
Paradeep – 754145
Dist. Jagatsinghpur (Odisha)

ii) Industry Category Primary (STC Code) : Fertilizer

iii) Secondary (SIC code) : Red

iii) Production Capacity

Sr. No.	Products	Quantity
1.	Phosphatic Fertilizers (DAP)/ (NPK) (4 trains)	1.9 MMTPA
2.	Sulphuric Acid (3 streams)	1.452 MMTPA
3.	Phosphoric Acid	0.681 MMTPA
4.	Electric Energy	55 MW
5.	Zypmite Plant	240 TPD
6.	DG Set	3.0 MVA

iv) Year of Establishment : 1981

v) Date of last Environmental Statement return submitted. : 30th September 2024

PART –B

WATER & RAW MATERIAL CONSUMPTION

Water consumption (m^3/Day)	2023-2024	2024-2025
Process*	8313	8867
Cooling**	3197	2393
Domestic***	8180	7148
Total	19690	18407
* Includes fresh water for water make up, DM water, Service water etc.		
** Includes fresh water for cooling tower make up.		
*** Includes water for drinking, toilets, washing & canteen supply in plant.		

Water consumption per unit of product (m^3/MT):

Sl. No.	Name of products	During Current Financial Year 2023-24	During Current Financial Year 2024-25
I.	DAP/NPK	0.081 m^3/MT	0.079 m^3/MT
II.	SAP	0.76 m^3/MT	0.486 m^3/MT
III.	PAP	4.59 m^3/MT	3.53 m^3/MT
IV.	CPP - Electricity	8.25 m^3/ MW of Electricity generation	7.863 m^3/ MW of Electricity generation

Raw Material Consumption

Sl. No.	Name of Raw Material	Consumption of raw material per unit of output (T/ton of DAP)	
		During the present Financial year 2023 - 2024	During the present 5inancial year 2024 - 2025
1	Phosphoric acid as P_2O_5	0.465	0.466
2	NH_3	0.222	0.221
3	Sulphuric acid	0.003	0.001
4	Filler	0.041	0.041
		Consumption of raw material per unit of output (T/ton of Phosphoric acid)	
5	Rock phosphate	3.268	3.307
		Consumption of raw material per unit of output (T/ton of Sulphuric acid)	
6	Sulphur	0.327	0.322

PART –C

POLLUTION DISCHARGED TO ENVIRONMENT/ UNIT OF OUTPUT (PARAMETERS AS SPECIFIED IN CONSENT ISSUED)

Pollutants	Quantity of pollution generated	Concentration of * Pollutants in discharge	OSPCB prescribed standards
A) Water (m3/day)	**STP- 507 ETP- 1007**		
pH		Please refer annexure I	
Suspended Solids			
Oil & Grease			
Ammoniacal Nitrogen as N			
TKN as N			
Free Ammoniacal Nitrogen as N			
Nitrate Nitrogen as N			
Phosphate as P			
Fluoride as F			
Fecal Coliform (MPN/100ml)			

* These figures are average figures based on the regular monitoring being done at the STP and ETP.

B**) Air Pollutants:**

SI No.	**Stack details**	**Pollutants**	**Quantity of Pollutants discharged (mass/day) (Ton/day) 2024-2025**	**Concentration of Pollutants discharged (mass/volume) (mg/Nm3) 2024-2025**	**Percentage of variation from prescribed standard with reasons**
1	DAP – A	PM (mg/Nm^3)	0.529	68.6	Complied. Observed PM concentrations are well within the stipulated limits. (<100 mg/Nm^3)
2	DAP – B		0.511	66.7	
3	DAP – C		0.455	60.3	
4	DAP – D		0.480	63.7	
5	Zypmite – 1		0.032	56.6	
6	Zypmite – 2		0.017	57.4	
7	Zypmite – 3		0.001	47.3	
8	PAP-1		0.133	38.8	
9	PAP-2		0.026	30.4	

Note: Please refer Annexure-II for details of each stacks & ambient air Quality monitoring.

PART –D

Hazardous Wastes

(As specified under Hazardous Wastes Management and Handling Rules, 1989 & amendment on 2016)

Hazardous wastes	Total Quantity Generated (MT)	
	During the Previous financial year 2023-2024	During the current financial year 2024-2025
Used/Spent Oil	10.48	Nil
Waste/Residues Containing Oil	Nil	Nil
Oily Sludge	Nil	Nil
Spent Resin	Nil	Nil
Discarded barrels/containers	0.5	0.3
Chemical Sludge from waste water treatment plant (ETP Sludge)	954.4	1131.6
Sulphur Muck	2028	2123
Spent Catalyst	96.75	54.45

PART –E

Solid Waste Generation

Solid wastes		Quantity (in MT)	
		During the previous financial year 2023-24	During the current financial year 2024-25
From process	Phospho-Gypsum	1872125	2430800
From Pollution Control facilities	DAP – A	1122.5	1120.9
	DAP – B	2050.1	2051.8
	DAP – C	1091.2	1117.1
	DAP – D	1399.5	1452.5
	PAP-1	1094.3	1868.6
	PAP-2	-	

Note: Based on Air Pollution Control Equipment designed flow and actual running hours. All the dust collected in APCE is automatically recycled into the process.

PART –F

Please specify the characteristics in terms of concentration and quantum of Hazardous as well as solid wastes and indicated disposal practice adopted for both these categories of waste.

Sl. No.	Hazardous wastes	Nature	Source	Generation Quantity/ Annum	Frequency of generation	Mode of Disposal
1.	Sulphur Muck (MT)	Solid	SAP	2123	Daily	Used as filler in DAP plant
2.	Spent Catalyst (MT)	Solid	SAP	54.45	Annual	Disposed to captive secured landfill/ Authorized recycler
3.	Used Oil (T)	Liquid	Plant/ Workshop	0	Occasional	Sold to authorize recyclers.
4.	Waste containing oil (MT)	Solid	CPP/Workshop/ PAP	0	Occasional	Sold to authorize recyclers.
5.	Oily sludge (T)	Solid	Fuel oil handling areas	0	Occasional	-
6.	Spent Resin (MT)	Liquid	DM water plant	0	Occasional	Disposed to captive secured landfill/ Authorized recycler
7.	Discarded barrels / containers (T)	Solid	Stores/ SAP	0.3	Annual	Captive use/Disposal to authorized dealers.
8.	Chemical Sludge from waste water treatment plant (MT)	Solid	ETP	1131.6	Daily	Used as filler in DAP plant.

PART -G

Impact of the pollution control measures on conservation of natural resources and consequently on the cost of production:

PPL has adopted all modern process technologies to control the pollutants at source itself. All the plants are having the most sophisticated Pollution Control devices for air and water as mentioned below;

Sl No.	Process/ Plant	Control Measures
01	SAP	DCDA Process, Imported V2O5 Catalyst, Candle Filter, Alkali scrubbers, Mist eliminator/demister pad, Stack (120 mtr), continuous SO2 analyzer in stack.
02	PAP	Wet Grinding of Rock, 3 stages Fumes scrubbers, Hydroflusosilicic acid recycling, FRU, Stack (50mtr), and continuous HF and PM analyzers.
03	DAP	Cyclone, Venturi Scrubbers, Mist Eliminator, Stacks (50mtr), continuous HF analyzer.
04	Effluent/Sewage treatment	ETP & STP.

PART –H

Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution:

a) Additional measures:

1. Truck mounted water tankers were engaged for water sprinkling to control dust pollution due to vehicular movement.

Truck Mounted Water Sprinkler

2. Sweeping machine is used to take care of fugitive dust emission.

Road Sweeping Machine

3. Concrete enclosures were provided for the raw material silos to prevent dust pollution.

Concrete Enclosures For Silo

4. Concrete enclosures were provided for cross country conveyor belts from jetty to the plant for prevention of dust pollution due to raw material transfer.

Concrete Enclosures For Conveyor Belts

5. Bag filters were installed at raw material transfer points from jetty to the plant for prevention of air pollution.

Bag Filter Installed at Jetty

6. Online Continuous Emission Monitoring systems were installed at major process stacks for continuous monitoring of critical parameters and the online data thus generated is being transmitting to SPCB/CPCB server continuously.

Online CEMS Analyser

7. HDPE layered gypsum pond was constructed to take care of Phospho-Gypsum generated as by product of PAP process.

HDPE Lined Gypsum Pond

8. An organic waste converter of capacity 200 Kg/Day was installed and commissioned for conversion of bio degradable waste to organic compost.

Organic Waste Converter

9. Four numbers of Continuous Ambient Air Quality Monitoring stations were installed and commissioned inside the plant for monitoring of ambient air quality parameters such as PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO and NH_3. Online real time data thus generated is being transmitting to SPCB and CPCB round the clock.

CAAQMS Stations Installed in Plant

10. Mechanized wheel washing system is installed near security barrack to prevent road dust pollution from all outgoing vehicles. All outgoing vehicles are instructed to go through the Mechanized wheel washing system.

b) <u>Investment Incurred</u>:

An amount of Rs. 6558 lakhs have been invested towards protection of environment under Air/Water Act during FY 2024-25.

PART - I

Any other particulars for improving the quality of the environment:

i. We continually strive to integrate sustainability into our operations through effective resources management, fostering a safe, inclusive and productive work place, materials stewardship, responsible energy use, water use optimization, positive waste management and conservation of bio-diversity.

ii. We have taken certain measures to reduce or mitigate fugitive emissions from our operations. One such measure is the installation of efficient Sulphuric acid mist eliminators in our Sulphur acid plant. We have also provided fume scrubbers in our phosphoric acid plant to reduce fluoride emissions. Additionally, we conduct regular operation and maintenance activities for our ducts and vents to detect possible leakages in order to control fugitive Sox emissions.

iii. In order to prevent venting of ammonia or any process gas in emergency situations, we have installed a flaring system in our stacks. This system burns off all excess process gases completely, minimizing all hazards arising due to venting. One of the most significant steps we have taken to monitor air quality real time to install ambient air quality monitoring stations in the periphery of our plant. The real time data from the stations is being transmitted to OSPCB and CPCB server.

iv. We have established our own Environmental Management Department with well-equipped environment laboratory for regular monitoring of various environmental parameters and to ensure compliance of all statutory obligations from time to time. Through this department and key personnel in other departments, we regularly monitor various environmental performance parameters. The department provides regular feedback to the management for continual improvement in environmental performance.

v. Gypsum is one of the most significant wastes produced at our operations. Daily, our operations produce over 7000 MT of gypsum. Over the years, we have stored our gypsum waste at site and invested our efforts into researching possible opportunities for value creation through use of gypsum. About 500 meters of road is made by utilizing neutralized phospho gypsum for trial use with the collaboration of CRRI. Zypmite is a Phospho-gypsum fertilizer made from gypsum generated by our plant and basic slag waste generated by the nearby steel industries.

vi. Apart from optimizing materials used by our operations, managing waste generated from our facilities is another focus area of our material stewardship activities. We take consistent measures to ensure that the waste going out of our premises or stored at our facilities has minimal, or no impact on the environment. In this regard, we try to maximize the reuse of waste inside our operational boundaries. We utilize sulphur muck generated from our Sulphuric Acid plant in the Phosphatic fertilizer manufacturing process as filler. All drain sludge and ETP sludge is utilized in our Phosphatic Fertilizer Plant as filler.

vii. <u>NABL Accredited Environment Laboratory</u>:

- The Plant had already developed a well-equipped, NABL accredited Environmental laboratory for monitoring of various environmental parameters with latest sophisticated Instruments.

Environment Laboratory

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Annexure-I

TREATED EFFLUENT QUALITY

(From April' 2024 to March' 2025)

A. EFFLUENT TREATMENT PLANT (ETP) – (ZERO DISCHARGE DURING PERIOD)
TREATED EFFLUENT QUALITY OF TREATED WATER SUMP

Sl No	Parameters	Prescribed limit by OSPCB (mg/l)	Minimum (mg/l)	Maximum (mg/l)	Yearly Average (mg/l)
1	pH	6.5 ~ 8.5	6.55	8.48	-
2	Suspended Solids	100	8	14	11.14
3	Oil & Grease	10	<2	<2	<2
4	Ammoniacal Nitrogen as N	50	2.4	43.9	20.15
5	TKN as N	75	2.8	45.2	24.75
6	Free Ammoniacal Nitrogen as N	4	0.1	3.8	1.78
7	Nitrate Nitrogen as N	20	4.4	16	8.8
8	Phosphate as P	5	0.05	0.96	0.19
9	Fluoride as F	10	0.78	1.2	0.97

B. SEWAGE TREATMENT PLANT (STP)

Sl No	Parameters	Prescribed limit by OSPCB (mg/l)	Minimum (mg/l)	Maximum (mg/l)	Yearly Average (mg/l)
1	pH	6.5 ~ 9.0	6.7	7.5	7.15
2	TSS	< 100	11	45	31.25
3	Biochemical Oxygen Demand (BOD) 3 days at 27°C	30	5.6	9.2	7.14
4	Fecal Coliform (MPN/100ml)	< 1000	73	205	140.5

***ND: Not Detectable**
All results are based on yearly average values.

Annexure –II

AIR QUALITY STATUS

(From April' 2024 to March' 2025)

(A) STACK EMISSION DATA

Sl No	Stack location	PM	SO_2	Acid Mist	Total Fluoride	Ammonium as NH3
Prescribed Limit		**100 mg /Nm^3**	**1.5/1.0 Kg/T of H_2So_4**	**50 mg /Nm^3**	**20 mg /Nm^3 (PAP) < 10 mg /Nm^3 (DAP)**	**300 mg /Nm^3**
1	DAP – A	68.6	NA		3.7	153.2
2	DAP – B	66.7			3.4	167.2
3	DAP – C	60.3			3.5	128.4
4	DAP – D	63.7			2.7	130.4
5	Zypmite- 1	47.3			NA	
6	Zypmite -2	38.8				
7	Zypmite-3	30.4				
8	SAP – A	NA	1.16	40.5	NA	
9	SAP – B		1.15	37.1		
10	SAP – C		0.94	38.5		
11	PAP-1	40.3	NA		5.1	NA
12	PAP-2	35.5	NA		4.3	NA

NA: Not Applicable

(B) AMBIENT AIR QUALITY DATA

Sl No	Location	PM 10	PM 2.5	SO_2	NOx	NH_3
Prescribed limit		**100 (ug/m^3)**	**60 (ug/m^3)**	**80 (ug/m^3)**	**80 (ug/m^3)**	**400 (ug/m^3)**
1	Near Fire & Safety Building	66.7	46.2	8.2	20.9	20.6
2	PPL Guest House	61.4	45.9	9.1	21.1	21.3
3	Near MOP silo	63.1	46.0	8.0	19.6	19.8
4	Near Rock Silo	64.7	46.9	8.1	19.9	19.9