

Environmental Statement  
(FORM-V) of GAIL Pata  
For FY 2023-24



**GAIL (INDIA) LIMITED**  
**PATA PETROCHEMICAL COMPLEX**



**[FORM -V]**  
(See Rule 14)

**Environmental Statement for the financial year ending the 31<sup>st</sup> March 2024.**

**PART- A**

**(i) Name and Address of the owner / occupier of the industry operation or process:**

Shri Ajay Tripathi  
Executive Director (PC-O&M) & OIC  
GAIL (India) Limited  
Petrochemical Complex  
P.O. Pata, District - Auraiya  
Uttar Pradesh - 206 241

**(ii) Industry Category:** Primary – (STC Code-AAACG1209JST006)

**(iii) Production Capacity:**

Name of Unit	Capacity (MT/Annum)
Polymer (HDPE + LLDPE)	8,10,000
LPG	2,71,059
Propane	1,76,000
Naptha + Pentane	48,686

**(iv) Date of the last environmental statement submitted-** Submitted for FY 2022-23 on 14.08.2023

**(v) Year of establishment-** 1999

**PART-B**

**Water and Raw Material Consumption**

**(i) Water Consumption m<sup>3</sup>/day**

**Process** - 11,100 m<sup>3</sup>/ day \*

**Cooling** - 22,237 m<sup>3</sup>/ day

**Domestic** - 484 m<sup>3</sup>/ day

\* Water consumption in Process includes mainly Demineralized Water & Service Water etc.

Name of Product	Process Water Consumption per unit of product output	
	During the Previous Financial Year 2022-23	During the Current Financial Year 2023-24
Polymer (HDPE + LLDPE) LPG Propane Naptha + Pentane	3.97 m <sup>3</sup> /MT of product	3.67 m <sup>3</sup> /MT of product
<b>Total Production</b>	7,18,436 MT	11,03,101 MT
<b>Total Process Water</b>	28,56,106 m <sup>3</sup>	40,51,456 m <sup>3</sup>

**(ii) Raw Material Consumption**

Name of Raw Material	Name of Products/unit	Consumption of Raw Material per unit of Output	
		During the Previous financial Year 2022-23	During the Current Financial Year 2023-24
Natural Gas*	LPG	469 SCM / MT of LPG	477 SCM / MT of LPG
Natural Gas*	Propane	536 SCM / MT of Propane	536 SCM / MT of Propane
Natural Gas*	Pentane	328 SCM / MT of Pentane	328 SCM / MT of Pentane
Natural Gas*	Naphtha	277 SCM / MT of Naphtha	277 SCM / MT of Naphtha
Ethylene	HDPE	1.024 MT / MT of HDPE	1.025 MT / MT of HDPE
Ethylene	LLDPE	0.972 MT / MT of LLDPE	1.013 MT / MT of LLDPE

\*Consumption as Process Gas.

- Industry may use codes if disclosing details of raw material would violate contractual Obligations, otherwise all industries have to name the raw materials used.

## PART-C

### Pollution discharged to environment/unit of output (Parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharged* (mass/day)	Concentration of pollutants in discharges (mass/volume)*	Percentage of variation from prescribed standards with reasons
(a) Water	Qty of Treated water discharged: 3,827 M <sup>3</sup> /day	BOD: 18.2 mg/l	0
		COD: 72.9 mg/l	0
		Oil & Grease: <2 mg/l	0
		TSS: 38.4 mg/l	0
(b) Air	Qty of Flue gases discharged: 42,093 MT/day	PM: 3.7 mg/Nm <sup>3</sup>	0

\*Average data for Financial Year 2023-24.

## PART-D

### HAZARDOUS WASTES

(As specified under Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016)

Hazardous Waste	Total Quantity	
	During the previous Financial Year (2022-23) (MT)	During the current Financial Year (2023-24) (MT)
(a) From process		
Spent Activated Carbon	123.6	108.8
Spent Coke	25.6	8.4
Tar	15.8	13
Spent Resins	30.7	9.8
Waste Mineral Oil	11.2	7.1
Waste Oil	33.6	45.3
Used Lube Oil Filter Cartridges	0.0	0.0
Contaminated Cotton Rags	2.0	1.7
Used Paint Drums	0.0	0.0
Spent Catalysts	222.5	23.1
(b) From pollution control facilities		
WWTP Sludge	2430	793.1
Slop Oil	907.9	923.1

**PART-E**  
**SOLID WASTE**

Solid Waste	Total Quantity	
	During the previous Financial Year (2022-23) in MT	During the current Financial Year (2023-24) in MT
(a) From process		
Spent Silica Gel	199.6	0.00
(b) From pollution control facility	-	-
(c) (1) Quantity recycled or re-utilized within the unit	-	-
(2) Sold		
Spent Alumina	966	1169
Metal Scrap	543	810
Plastic Scrap	135	114.3
Wooden Scrap	375	662
Spent Ceramic Materials	15	0.0
Cables scrap	25	14
Waste Cartons	25	91.7
Used Tyres	9.32	0
(3) Disposed	-	-

**PART-F**

**Please specify the characterizations (in terms of composition of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.**

**TYPICAL CHARACTERISTICS OF HAZARDOUS WASTE**

**SOLID/SEMI-SOLID:**

SL NO.	PARAMETERS	UNIT	TAR	SPENT CARBON	SPENT COKE	OILY SLUDGE
1.	Calorific value	Kcal/Kg	7846.2	5237	689.5	5481
2.	Moisture	%	12.1	27.86	13.2	26.48
3.	Total solids	%	88.65	72.1	86.35	70.8
4.	Volatile solids	%	85.35	63.2	82.52	64.9
5.	Ash contents	%	6.2	0.35	6.8	0.38
6.	Oil & Grease	%	6.18	0.68	7.1	0.54
Mode of Disposal			Through Authorized TSDF			

## **LIQUID HAZARDOUS WASTE:**

### **TYPICAL CHARACTERISTICS OF SLOP OIL**

<b>SL NO.</b>	<b>PARAMETERS</b>	<b>UNIT</b>	<b>SLOP OIL</b>
1.	Calorific value	Kcal/Kg	876.2
2.	Moisture	%	0.28
3.	Total solids	%	97.3
4.	Volatile solids	%	24.3
5.	Ash contents	%	68.4
6.	Oil & Grease	%	0.67
Mode of Disposal			Through authorized recyclers

*Source: Third Party Environment monitoring report by MoEF&CC Authorized and NABL accredited agency.*

## **PART -G**

### **Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.**

GAIL Pata is ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 50001:2018 certified and GreenCo Gold rated company. The following proactive initiatives have been taken for the conservation of Natural Resources:

#### **Water and Wastewater Management:**

The water demand of the complex is met by canal water, thereby reducing/eliminating the use of precious groundwater. All the effluent generated from plant premises is routed to Waste Water Treatment Plant situated at GAIL Pata. The effluent is treated to meet the prescribed statutory standards specified by UP State Pollution Control Board (UPPCB). The quality of treated effluent is monitored continuously through online analyzers and data is transmitted to CPCB/UPPCB portal on real-time basis. A part of treated effluent is used in horticulture activities. Membrane Bio Reactor (MBR) based Sewage Treatment Plant has been set up in the GAIL Gaon Township and the treated water is used for irrigation of lawns/gardens etc. GAIL Pata conducts annual Water Audit through an accredited Agency and its recommendations are implemented to improve the efficiency of water usage.

#### **Air Quality Management**

GAIL Pata utilizes natural gas, which is considered as one of the cleanest fuels available. All the stacks in the plant have suitable height for proper dispersion of the emitted pollutants. In addition,

low NOx burners are used in all furnaces and boilers to minimize emissions. The emissions from the stacks are continuously monitored using online analyzers, and the data is transmitted to CPCB/UPPCB portal on real-time basis. Loading facilities are equipped with vapor return circuits, and gas detectors have been installed to ensure timely detection of gas leaks. GAIL Pata carries out Leak Detection & Repair Program (LDAR) for all process units, to detect any fugitive emissions (VOCs) and conserve precious resources while reducing energy consumption.

### **Biodiversity Management**

Regular plantation at GAIL Pata and GAIL Gaon Township is carried out and an extensive greenbelt is being maintained. Mass tree plantation drives are carried out on the occasion of World Environment Day, Van Mahotsav, Birthday Tree Plantation, etc. for increasing awareness among the employees, family members, and other stakeholders. As a result, GAIL Pata have Extensive peripheral greenbelt ~36 % of the total plant area against the mandatory requirement of 33%.

### **Energy Management**

As per requirement of Energy Conservation Act'2001 and PAT Cycle, a dedicated energy management team and an energy management cell exists in the complex comprising of a designated energy manager and other engineers who are involved in monitoring, computation & analysis of energy usages. The team helps in taking timely corrective actions in case of deviation in target performance, conducting energy audits and implementation of energy saving measures for energy efficient operation of the complex. Energy Performance parameters are benchmarked against global standards and are being monitored regularly and reviewed by top management on monthly basis.

External Energy Audits are carried out at specified intervals and Internal Energy Audits are conducted through BEE certified internal energy auditors and energy managers available in the complex. Some of the key initiatives undertaken for energy performance improvement in the last FY 2023-24 are Operational optimization of running equipment, Monitoring/Rectification of leakages/ Passing Valves, Steam Trap Sustainance Management, Phase wise replacement of HPMV lamps with LEDs, Replacement of Old Rewound Motors with Higher Efficiency IE3 class motors. GAIL Pata has recently commissioned 2.64 MWp Roof Top Grid Connected Solar PV Plant for clean energy production. This is the latest addition to the existing Roof Top Grid Connected Solar PV Plant of capacity 5.76 MWp.

## **PART-H**

### **Additional measures/investment proposal for environmental protection including abatement of pollution, prevention of pollution.**

- Adequate stacks height has been provided for effective dispersion of pollutants.
- Low NOx burners are used in all the furnaces in the complex.
- Liquid hydrocarbon loading facilities are provided with vapor return circuits.
- Gas detectors have been installed to ensure quick detection of a gas leak.
- Five numbers of fixed Continuous Ambient Air Quality Monitoring Station (CAAQMS) and one mobile van has been installed for ambient air quality monitoring.
- All the boiler and furnace stacks are equipped with on-line analyzers for monitoring stack air quality on continuous basis.

- Data from EQMS and OCEMS are transmitted on real-time basis to CPCB & SPCB servers.
- Electronic Display board has been installed at plant main gate for public view of ambient air, stack flue gas and treated effluent quality parameters.
- Advanced Daylighting System has been installed in Mechanical Workshop on pilot basis.
- Waste paper collection trays have been installed at various sources of generation and collected paper is sent to recyclers.
- Old critical motors are being replaced with energy efficient motors in a phase wise manner.
- Biodiversity assessment was carried out in the plant as well as township premises and measures are being taken for conservation of identified flora & fauna species.
- GAIL Pata has implemented GreenCo rating system and has been rated “GreenCo Gold” by M/s CII Godrej GBC.
- GAIL Pata has setup a pilot scale plant for utilization of 1 MT of CO<sub>2</sub> per day through microbial route.
- GAIL Pata carried out plantation of 27,900 tree saplings during FY 2023-24.
- Zero Liquid Discharge (ZLD) project is under implementation at GAIL Pata to reduce water footprint of the plant.
- Project for installation of 15 MW floating solar has been approved.

## **PART-I**

### **Any other particulars for improving the quality of the environment.**

GAIL management has already initiated many projects related to the improvement of the quality of the environment some of which are described below:

- Ecological Park has been developed in GAIL Gaon Township by carrying out afforestation, fencing of the demarcated area to avoid unauthorized access, fish seeding in eco-ponds, and random dispersion of seed balls in the area.
- Butterfly garden has been developed in GAIL Gaon township by planting various species of Larval Host Plants and Nectar Plants to attract different species of butterflies.
- Installation of Hand pumps, Solar Home lights through CSR in nearby villages.
- Support towards Construction of CC Roads in nearby villages of Pata Plant
- Organic waste generated from Plant and Township is being converted into compost in Organic Waste Converter plant installed at both plant and township premises and the compost generated is used as manure in gardens.