



गेल (इंडिया) लिमिटेड

(भारत सरकार का उपक्रम - एक महारत्न कंपनी)

GAIL (India) Limited

(A Government of India Undertaking - A Maharatna Company)

पाता पेट्रोकेमिकल्स
पो - पाता, जिला - औरैया
पिन - 206241 (उ.प्र.), भारत

PATA - PETROCHEMICALS
P.O. - PATA, DISTT.-AURAIYA
PIN - 206241 (U.P.), INDIA

फोन/PHONE : + 91 5683 282356, 282049, 283403-5
फैक्स/FAX : + 91 5683 282446

संदर्भ: GAIL/PATA/SD&E/2022/ 7९०

दिनांक: 20.09.2022

सेवा में,
मुख्य पर्यावरण अधिकारी (वृत्त-2),
उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, लखनऊ

विषय: वित्तीय वर्ष 2021-22 के लिये गेल पाता का पर्यावरण विवरण ।

महोदय,

गेल पाता का वित्तीय वर्ष 2021-22 का पर्यावरण विवरण आपकी जानकारी के लिये इस पत्र के साथ संलग्न है ।

धन्यवाद सहित ।

अमित
20/09/2022

(अमित सिंह)

उपमहाप्रबंधक (तकनीकी सेवाएँ)

ई-मेल: singh.amit@gail.co.in

संलग्नक:

- वित्तीय वर्ष 2021-22 का पर्यावरण विवरण

पंजीकृत कार्यालय :

गेल भवन, 16 भीकाएजी कामा प्लेस, आर.के. पुरम्,
नई दिल्ली - 110066, इंडिया

REGD. OFFICE:
GAIL BHAWAN, 16 BHIKAIJI CAMA PLACE, R.K. PURAM,
NEW DELHI - 110066, INDIA

सीआईएन/CIN
L40200DL1984G01018976

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[FORM -V]
(See Rule 14)

Environmental Statement for the financial year ending the 31st March 2022.

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)
High Density Polyethylene Unit- I (HDPE I)	100,000
High Density Polyethylene Unit- II (HDPE II)	100,000
Linear Low-Density Polyethylene Unit- I (LLDPE-I)	210,000
Linear Low-Density Polyethylene Unit- II (LLDPE-II)	400,000
Liquefied Petroleum Gas Unit (LPG)	271,059

(iv) Date of the last environmental statement submitted- Submitted for FY 2020-21 on 10.08.2021

(v) Year of establishment- 1999

PART-B

Water and Raw Material Consumption

(i) Water Consumption m³/day

Process - 11084 m³/ day *
Cooling - 25107 m³/ day
Domestic - 586 m³/ 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 Current Financial Year 2020-21	During the Current Financial Year 2021-22
(1) Liquefied Petroleum Gas (LPG) (2) Propane, Pentane & Naphtha (3) High Density Polyethylene (HDPE) (4) Linear Low Density Polyethylene (LLDPE)	0.53 m ³ /MT of product	3.78 m ³ /MT of product *
Total Production	11,76,510 MT	10,71,109 MT
Total Process Water	6,21,128 m ³	40,45,676 m ³

**Methodology for calculation has been revised from FY 2021-22 wherein Demineralized Water consumption has been accounted in process water instead of Cooling water as was being done till FY 2020-21*

(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 2020-21	During the Current Financial Year 2021-22
Natural Gas*	LPG	468 SCM / MT of LPG	476 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 units	1.00 MT / MT of HDPE	1.01 MT / MT of HDPE
Ethylene	LLDPE units	0.97 MT / MT of LLDPE	0.98 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: 3724 m ³ /day	BOD: 19 mg/l COD: 113 mg/l Oil & Grease: <4 mg/l TSS: 25 mg/l	0 0 0 0
(b) Air	Qty of Flue gases discharged: 34369 MT/day	PM: 1.9 mg/Nm ³	0

*Average data for Financial Year 21-22.

PART-D

HAZARDOUS WASTES

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

Hazardous Waste	Total Quantity (Generated)	
	During the previous Financial Year (2020-21) (MT)	During the current Financial Year (2021-22) (MT)
(a) From process		
Spent Activated Carbon ⁽²⁾	61	172.3
Spent Coke ⁽²⁾	-	25.3
Tar ⁽²⁾	15	17.4
Spent Resins ⁽²⁾	-	0.0
Waste Mineral Oil ⁽²⁾	21	15.5
Waste Oil ⁽³⁾	68	50.0
Used Lube Oil Filter Cartridges	-	0.0
Contaminated Cotton Rags ⁽²⁾	-	2.3
Used Paint Drums ⁽²⁾	-	0.6
Spent Catalysts ⁽²⁾	-	37.6
(b) From pollution control facilities.		
WWTP Sludge ⁽²⁾	1000	415
Slop Oil ⁽³⁾	1910	2777

Note:

- Hazardous Waste Authorization has been renewed on 08.07.2021 and is valid up to 07.07.2026
- Presently Spent Activated Carbon, Spent Coke, Tar, Spent Resins, Waste Mineral Oil, Oily WWTP sludge (dry basis), Contaminated Cotton Rags, Used Paint Drums, Spent Catalysts are being disposed off through authorized TSDF facility.
- Used Oil and Slop Oil from WWTP are sent to authorized recyclers.



PART-E
SOLID WASTE

Solid Waste	Total Quantity	
	During the previous Financial Year (2020-21)	During the current Financial Year (2021-22)
(a) From process		
Silica Gel	51 MT	57 MT
(b) From pollution control facility		
(c) (1) Quantity recycled or re-utilized within the unit	-	-
(2) Sold : Spent Alumina	1237 MT	1159 MT
(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/gm	Kcal/gm	8.7	8.1	7.3	17.1
2.	Moisture %	%	28.6	7.0	5.6	29.3
3.	Total solids %	%	71.4	92.5	92.7	70.7
4.	Volatile solids %	%	15.3	5.6	5.2	6.5
5.	Ash contents %	%	0.93	88.3	91.3	11.9
6.	Oil & Grease %	%	4.2	0.01	-	38.2



LIQUID HAZARDOUS WASTE:

TYPICAL CHARACTERISTICS OF SLOP OIL

SL NO.	PARAMETERS	UNIT	SLOP OIL	USED OIL
1.	Calorific value, Kcal/gm	Kcal/gm	9.7	9.8
2.	Moisture %	%	38.4	0.46
3.	Total solids %	%	61.6	0.17
4.	Volatile solids %	%	7.3	98.3
5.	Ash contents %	%	11.7	0.1
6.	Oil & Grease %	%	38.2	-

Source: Third Party Environment monitoring report by M/s ABC Techno Labs India Pvt. Ltd., Chennai during FY 2021-22.

PART -G

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

The following proactive initiatives have been taken for conservation of Natural Resources:

Water Conservation

A comprehensive Waste Water Treatment Plant has been set up, primarily to ensure that our wastewater is treated so as to maintain the river water quality at the discharge point. Part of treated wastewater is recycled and used for horticulture purposes. Water demand of the complex is met by surface water, thereby reducing/eliminating the use of precious groundwater. 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. The efficient sewage treatment process ensures odorless & clean environment which adds to the hygiene level.

Green Belt Development

Regular plantation at GAIL Pata and GAIL Gaon Township is being carried out for development and sustenance of greenbelt area. Mass tree plantation drives are carried out on occasion of World Environment Day, Van Mahotsav, Birthday Tree Plantation, etc. for increasing the awareness among the employees, family members and other stakeholder.

Leak Detection & Repair Program (LDAR)

Leak Detection & Repair Program (LDAR) is carried out for all the process units of GAIL Pata for detection of fugitive emission (VOCs) if any and thereby saving precious resource and reduction in energy consumption.

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Rain Water Harvesting

Rain Water harvesting measures have been implemented in major buildings and approximately 29,000 m³ of rainwater has been harvested in FY 2021-22 at GAIL Pata. Also, a pond has been developed to store rainwater and use it in emergency due to water scarcity and also helps to avoid inundation of nearby villages due to heavy monsoon.

Energy Conservation

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 usage, 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 as per requirement of EC Act'2001 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 21-22 are Thermography Survey & Revamping of damaged insulations in Furnaces & Boilers, Energy conservation through condensate recovery, Operational optimization of running equipment(ex. BFW pumps in Boilers, running of lower capacity pumps as per process requirement), Monitoring/Rectification of leakages/ Passing Valves, Steam Trap Sustenance Management, , Phase wise replacement of HPMV lamps with LEDs, Replacement of Old Rewound Motors with Higher Efficiency IE3 class motors.

In addition to the above GAIL Pata has installed Roof Top Grid Connected Solar PV Plant of Capacity 5.76 MWp for cleaner energy production. Apart from this, another of 2.64 MWp Solar PV Plant has been partially commissioned and balance installation and commissioning is under progress.

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 also 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 and stack quality, and discharged effluent quality parameters.

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- Advanced Daylighting System has been installed in Mechanical Workshop.
- Organic food waste generated from Plant and Township is being converted into compost in Organic Waste Converter plant installed at both the places and the compost generated is used as manure in gardens.
- 150 sqft of Vertical garden is installed in front of Polymer Bhawan and Project Building.
- 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.
- Ecological Park has been developed in GAIL Gaon 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.
- 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 CO₂ by microbial route to utilized one MT of CO₂ per day.

PART-I

Any other particulars for improving the quality of the environment.

GAIL management has already initiated many social welfare & empowerment projects around the project site. Hand pumps, Solar Home light, Bus Stand, Electrification of roads, Women empowerment, Mobile Medical Unit, Construction of toilet, Clean Energy drive, Smart classes etc. have been provided for the benefit of villagers around the project site. Health, Pulse Polio & Family welfare camps are routinely organized for the villagers.

CSR activities related to environment improvement in Auraiya district for FY 2021-22

Healthcare/ Medical

- ❖ Health care services through MMUs (Mobile Medical Units 5 nos.) catering basic health services to various villages around GAIL, Pata Plant.
- ❖ HIV Care & Prevention through Mass Awareness & by setting up HIV Testing/ STI Treatment Centre (Khushi clinic) for the truckers and migrants.

Drinking Water / Sanitation

- ❖ Support for installation of Handpumps.

Community Development

- ❖ Support for COVID-19 relief arrangements.
- ❖ Conducting COVID-19 testing and vaccination in coordination with District Administration for employees, family members and concerned stakeholders.
- ❖ Support towards promotion of seed village for enhancing crop production and generating self-employment through Seed Processing Unit.
- ❖ Support for providing PPE Kits to frontline workers in Dibiyapur, Uttar Pradesh.
- ❖ Support towards weaving of blankets through SHGs and distribution of blanket to poor and needy people in villages & old age homes.
- ❖ Support towards Construction of CC Roads in nearby villages of Pata Plant
- ❖ Support for installation of Solar home lights in villages.