



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

पानीपत रिफाइनरी एवं पेट्रोकेमिकल कॉम्प्लेक्स

पानीपत, हरियाणा - 132140

Indian Oil Corporation Limited

Panipat Refinery & Petrochemical Complex

Panipat, Haryana - 132140

वेबसाइट: www.iocl.com; ई-मेल: prpc_hse@indianoil.in

दूरभाष : 0180-252 4001/0180-2578933



रिफाइनरीज़ प्रभाग
Refineries Division

Ref. No. : PRPC/HSE/Env. Statement/1

Date: 28.09.2023

To
The Additional Director,
Ministry of Env., Forest and Climate Change,
Regional Office (NZ), Bays No. 24-25
Sector 31 A, Dakshin Marg, Chandigarh - 160030

Subject: Environmental Statement For the year 2022-23

Respected Sir,

Enclosed please find herewith the Environment Statement of Panipat Refinery and PX-PTA Petrochemical Complex as **Annexure-I** and of Panipat Naphtha Cracker as **Annexure-II** for the financial year ending 31st March 2023 (2022-23).

Thanking you.

Yours faithfully,

(P. V. RAMAKRISHNA)

General Manager (HS&E)

For and on behalf of

Executive Director & Refinery Head

Panipat Refinery & Petrochemical Complex

Enclosures: As mentioned above.

पी. वी. रामाकृष्णा

P. V. Ramakrishna

प्रशासनिक (स्वास्थ्य, सुरक्षा, पर्यावरण)

General Manager (Health, Safety & Environment)

पानीपत रिफाइनरी एवं पेट्रोकेमिकल कॉम्प्लेक्स (आई.ओ.सी.एल.)

Panipat Refinery & Petrochemical Complex (I.O.C.L.)

पानीपत, Panipat-132140.

पंजीकृत कार्यालय: जी-9, अली यावर जंग मार्ग, बान्द्रा (पूर्व), मुम्बई-400051, महाराष्ट्र (भारत)
Regd. Office : G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai-400051, Maharashtra (India)
CIN - L 23201 MH 1959 GO 011386

ENVIRONMENTAL STATEMENT

(Financial Year: April'2022 to March'2023)

Name of the Company	:	Indian Oil Corporation Limited, Panipat Refinery.
Address	:	Indian Oil Corporation Ltd. P.O. Panipat Refinery, Dist : Panipat , State: Haryana Pin Code: 132140
Product	:	Petroleum & Petrochemicals Products

[FORM – V]

Environmental Statement for the year ending the March, 2023

PART-A

(i)	Name and address of the owner / occupier of the industry operation or process	Shri. M L Dahriya, Executive Director & Refinery Head. Indian Oil Corporation Ltd, Panipat Refinery, P.O. Panipat Refinery, Dist : Panipat – 132140 ,State: Haryana
(ii)	Industry Category Primary – (STC Code) Secondary – (SIC Code)	Refining of crude oil to produce various Petroleum and Petrochemical Products
(iii)	Production Capacity Units	15 MMTPA (Million Metric Ton Per Annum) of Crude Oil , 525 KTPA (Kilo Tons Per Annum) of PTA
(iv)	Year of Establishment	The Refinery with a Grass-root Crude Oil processing capacity of 6 MMTPA was commissioned in October 1998. The capacity was expanded by 6 MMTPA Refinery which was commissioned in June 2006. The capacity was further expanded by another 3 MMTPA in November 2010 thus making total refining capacity of 15.0 MMTPA. PX-PTA Petrochemical plant was commissioned in 2006.
(v)	Date of last Environmental Statement submitted	30.09.2022

Signature

PART-B

Water and Raw Material Consumption

- (1) Water Consumption M³ / day
 Process : 7,201 m³/day
 Cooling & Boiler : 34,188 m³/day
 Domestic : 8,033 m³/day

Sr. No.	Name of the Product	Process water consumption in Kl per ton of product output	
		During the previous financial year April, 2021 – March, 2022	During the current financial year April, 2022 – March, 2023
1.	Various Petroleum Products : Total : 12874514 MT for 2022-23	<input type="checkbox"/> Water (Process + Domestic) consumption : 4494810 m ³ Hence consumption in m ³ / MT : 0.32 m ³ /MT <input type="checkbox"/> Cooling water consumption : 10762973 m ³ Hence consumption in m ³ / MT : 0.762 m ³ /MT	<input type="checkbox"/> Water (Process + Domestic) consumption : 5560333 m ³ Hence consumption in m ³ / MT : 0.43 m ³ /MT <input type="checkbox"/> Cooling water consumption : 12478653 m ³ Hence consumption in m ³ / MT : 0.969 m ³ /MT

(ii) Raw Material Consumption

Name of the raw materials	Name of the products	Consumption of raw material per kg of output	
		During the previous financial year In kg April, 2021 – March, 2022	During the current financial year in kg April, 2022 – March, 2023
Crude oil	Various Petroleum products	Raw Material (Crude Oil) in MT: 14848848 <input type="checkbox"/> Various petroleum products: 14124420 MT Hence Raw material (i.e. crude oil) consumption per MT of product processed : 1.051	Raw Material (Crude Oil) in MT: 13810143 <input type="checkbox"/> Various petroleum products: 12874514 MT Hence Raw material (i.e. crude oil) consumption per MT of product processed : 1.073

[Signature]

PART-C

Pollution Discharged to Environment / unit of output (Parameter as specified in the consent issued)

(1) Pollutants	Quantity of pollutants discharged (mass / day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons
(a) Water	Treated Effluent from ETP-1, ETP-2 is re-used in RO plant feed/ CTs makeup. Treated effluent from PTA-ETP after meeting prescribed MINAS discharged into Thirana Drain. Quantity & Concentration of pollutant discharged into Thirana Drain is attached as Annexure-1 & Annexure-2.		0.00 %
(b) Air	Stack SO ₂ emission (Avg. for the year 2022-23): 1089 kg/hr. against permissible limit of 1375 kg/hr.		0.00 %

PART-D

HAZARDOUS WASTES

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Sr. No.	Hazardous waste (Generation)		Total Quantity in Metric Ton	
			During previous financial year April'21 – March'22	During current financial year April'22 – March'23
1.	From Pollution Control Facilities	Oily Sludge	609.60	295.14
2.	From Process	Spent Catalyst	852.37	1526.57
3.	From Process	Tank Bottom Sludge	762.23	945.58

PART-E**SOLID WASTES**

Sr. No.	Solid Waste Generation		Total Quantity in Ton	
			During the previous financial year April'21 – March'22	During the current financial year April'22 – March'23
(a)	From Process		--	--
(b)	From Pollution control facility		--	--
(c)	(1) Quantity recycled or reutilized Within the unit	Canteen food waste	24.3	39.16
	(2) Sold		--	--
	(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.

a) **Oily Wastes:**

After oil recovery from oily sludge, Bio-remediation of the remaining residual sludge is done.

b) **Spent Catalyst :**

Spent Catalysts are disposed through authorized recyclers as per HWM Rule-2016.

c) **Tank bottom sludge:**

It is disposed through authorized recyclers as per HWM Rule-2016.

PART-G

Impact of the Pollution Abatement Measures Taken on Conservation of Natural Resources and On the Cost of Production.

Please refer brochures

1. Greenbelt details of Panipat Refinery. Attached as Annexure-3.

PART-H

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

- 1.0 Diesel Hydro De-sulphurisation (DHDS) and Diesel Hydrotreater (DHDT) Units are operative for production of BS-VI grade low sulphur diesel.
- 2.0 Once through Hydrocracker Unit (OHCU) and Hydrocracker Unit (HCU) are operative for production of various low sulphur petroleum products.
- 3.0 Low NOx burners are installed in the major furnaces to reduce NOx emissions.
- 4.0 All stacks are provided with online SO₂, NO_x, CO & PM analyzers for continuous monitoring.
- 5.0 Off-gases is being treated with amine to remove the sulphur present in it before being utilized in furnaces.
- 6.0 Dynamic Emission Limit Implementation in PRPC stacks.
- 7.0 Five Sulphur Recovery Units are available for recovering sulphur from gaseous H₂S. Capacities of SRU are 2x115 TPD and 4x225 TPD.
- 8.0 Reverse Osmosis Plant uses ETP treated effluent as its feed for making DM water.
- 9.0 VOC recovery system is installed in the ETP.
- 10.0 Ten number of ambient air stations (2 in Panipat city, 1 in township & 7 within the refinery premises) are installed by IOCL Panipat for monitoring of ambient air quality as per the NAAQS standards.
- 11.0 2G and 3G Plants are already commissioned by IOCL Panipat. The 2G plant will help in reduction of Particulate Matter caused by indiscriminate rice straw burning.

PART-I

Any other particulars for improving the quality of environment.

1. Panipat Refinery is audited and certified by M/s K V Q A Certification Services Private Limited for Environmental Management System under: ISO-14001:2015, Occupational Health and Safety Management System under ISO-45001:2018 & Quality Management System under ISO-9001:2015.
2. Environment Awareness Program: **Attached as Annexure-4.**



ANNEXURE: 1

(PTA-ETP)

A) Effluent:

Quantity of Pollutants Discharged (Mass/day):

Sr. No.	Parameters	Permissible limit (Kg of Pollutants /day)	Quantity of pollutants in discharges (Kg. of Pollutants /day)	Percentage of variation from prescribed standards with reasons
1	pH	--	--	No variation from prescribed standards
2	COD	1530.00	618.07	
3	BOD	183.60	81.20	
4	TSS	612.00	251.23	
5	Phenol	6.12	2.05	
6	Sulphide as S	12.24	3.72	
7	Cyanide as CN	1.22	0.33	
8	Cr (hexavalent)	0.61	0.20	
9	Chromium (Total)	12.24	0.41	
10	Fluoride as F	30.60	10.23	



ANNEXURE: 2
(PTA-ETP)

Concentration of pollutants in discharges (mass/ volume)

A) Effluent:

Sr. No.	Parameters	Permissible limit (mg/l)	Concentration of pollutants in discharges (mg/l)	Percentage of variation from prescribed standards with reasons
1	pH	6.5-8.5	7.55	No variation from prescribed standards
2	COD	250	157.50	
3	BOD	30	20.21	
4	TSS	100	64.17	
5	Phenol	5	0.541	
6	Sulphide as S	2	0.98	
7	Cynide as CN	0.2	0.08	
8	Cr (hexavalent)	0.1	0.05	
9	Chromium (Total)	2	0.10	
10	Fluoride as F	5	2.65	

ANNEXURE-3

GREENBELT DETAILS AT PANIPAT REFINERY

Nos. of trees planted during last 3 Financial Years:

Year	No. of trees planted
2020-21	53,010
2021-22	1,11,571
2022-23	1,01,949

For the year 2022-23:

- No. of Trees Planted : 1,01,949
- Species of Trees planted in FY 2022-23:
Eucalyptus, Neem, Jamun, Pilkhan, Champa, Bottle Pam, Ashok, Guava, Bel, Ficus, Magnolia grandiflora, Mango, Naspatti, Amla, Kinoo, benjamina, Cycus, palm, Putranjeevi (Putranjiva roxburghii Wall, Gullar (Cluster fig), Bamboo, Cassia fistula(ambaltas), Kanchan, Accasia fistula

Detail of Species Planted as on date:

- | | | |
|------------------|-------------------|-------------------|
| 1. Kaijicia | 14. Papri | 27. Budr |
| 2. Shisham | 15. Chukresia | 28. Pipal |
| 3. Neem | 16. Aovla | 29. Kauair |
| 4. Kaehvav | 17. Gulmohar | 30. Bogan Bail |
| 5. Jamun / Jamoa | 18. Bottle bram | 31. Aeralvpornis |
| 6. Arjun | 19. Nimboo | 32. Benjamin |
| 7. Alestonia | 20. Amrud | 33. Cassia Shamia |
| 8. Amal Das | 21. Cassia galuca | 34. Toon |
| 9. Kadavb | 22. Safeda | 35. Guddal |
| 10. Kussum | 23. Bail Patthar | 36. Siros |
| 11. Poplar | 24. Chandni | 37. Legestonia |
| 12. Casuarinas | 25. Jaerenda | |
| 13. Legestovia | 26. Annar | |

ANNEXURE-4

Environment Awareness Programmes during the year 2022-23

1. WORLD ENVIRONMENT DAY CELEBRATION (WED) on 05.06.2022

WED Celebrated on 5th June, 2022 with great enthusiasm. Various competitions like Online quiz & Slogan Competition were held in which overwhelming response received from PRPC employees. Prabhat Pheri was also organized on 05.06.2022 in PRPC Township.

WED celebration was declared as Carbon Neutral Event and Tree plantation was also carried out. Around 37 saplings planted on this occasion.



(World Environment Day celebration-05th June 2022)



(Prabhat Pheri (Cyclothon) held on World Environment Day, 05th June 2022)

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Indian Oil corporation Limited, Panipat Refinery and Petrochemical Complex.



(Tree plantation on World Environment Day, 05th June 2022)

Indian Oil corporation Limited, Panipat Refinery and Petrochemical Complex.

2. Earth day on 22.04.2022

Earth Day was celebrated on 22 April-2022 at PR&PC. In 2022, events focused on the theme, Invest in Our Planet.



(Earth Day celebration-22nd April 2022)

Indian Oil corporation Limited, Panipat Refinery and Petrochemical Complex.

3. Tree Plantation on the eve of Mahatma Gandhi Jayanti - 2022

Mahatma Gandhi Jayanti - 2022 was celebrated as carbon neutral event. Around 15 saplings planted on this occasion.



4. Inauguration of 2G- Ethanol Plant on 10.08.2022:

The 2G Ethanol Plant was dedicated to the nation by Hon'ble PM on 10.08.22. Approx. 625 MT/day Rice Straw will be used as feed to this plant. This will reduce stubble burning, which will improve Ambient Air Quality in NCR and contribute towards Environmental Pollution Control.



[FORM – V]Environmental Statement of Panipat Naphtha Cracker for the year ending the **March, 2023****PART-A**

(i)	Name and address of the owner / occupier of the industry operation or process	Panipat Naphtha Cracker, Indian Oil Corporation Ltd (Govt. of India Undertaking) P.O. Panipat Refinery, Dist : Panipat – 132140 (Haryana) Presently Headed by : Shri. M. L. Dahriya, Executive Director & Refinery Head
(ii)	Industry Category Primary – (STC Code) Secondary – (SIC Code)	Cracking Naphtha to produce ethylene and propylene finally converted into petrochemical products such as LLDPE/HDPE (Swing), HDPE (Dedicated), Polypropylene and Mono Ethylene glycol.
(iii)	Production Capacity of Units	Naphtha Cracker Unit : 10800 MTD LLDPE/HDPE Swing Unit : 350 KTA HDPE Unit : 351 KTA Polypropylene Unit : 780 KTA MEG Unit : 425 KTA Butadiene Extraction unit : 429 MTD Butene – 1 : 20 KTA CMU : 1.5 KTA
(iv)	Year of Establishment	Naphtha Cracker Unit : 11th March' 2010 LLDPE/HDPE Swing Unit : 9th May' 2010 HDPE Unit : 18th May' 2010 Polypropylene Unit : 13th April' 2010 MEG Unit : 17th April' 2010 Butadiene Extraction unit : 23rd January'2014 Butene – 1 : 15th May'2014 CMU : 22 August'2023
(v)	Last Environmental Statement submitted	30.09.2022

P.L.

PART-B

Water and Raw Material Consumption

(i)

S. No.	Water Consumption	Quantity (M3/day)
1	Process	569
2	Cooling & Boiler	30286
3	Domestic	1229

Sr. No.	Quantity of Products (MT) For 2021-2022	Process water consumption in Kl per ton of product output	
		During the current financial year April, 2021 – March, 2022	During the current financial year April, 2022 – March, 2023
1.	Total Production : 1857877 MT	<ul style="list-style-type: none"> Total water consumption (Process + Domestic + cooling): 14914454 m3 Hence water consumption in m3 per MT of product : 5.31 m3/MT 	<ul style="list-style-type: none"> Total water consumption (Process + Domestic + cooling): 11710817 m3 Hence water consumption in m3 per MT of product : 6.30 m3/MT

(ii) Raw Material Consumption

Name of the raw materials	Name of the products	Consumption of raw material per MT of output	
		During the previous financial year in MT April, 2021 – March, 2022	During the current financial year in MT April, 2022 – March, 2023
Naphtha	Petro-chemical Products	<ul style="list-style-type: none"> Naphtha : 3006 TMT Finished product : 1946 TMT Raw material (i.e. Naphtha) consumption per MT of product processed: 1.54 	<ul style="list-style-type: none"> Naphtha : 2062 TMT Finished product : 1321 TMT Raw material (i.e. Naphtha) consumption per MT of product processed: 1.56

Signature

PART-C

Pollution Discharged to Environment / unit of output (Parameter as specified in the consent issued)

(1) Pollutants	Quantity of pollutants discharged (mass / day)	Concentration of pollutants in discharges (mass/ volume)	Percentage of variation from prescribed standards with reasons
(a) Water	<ul style="list-style-type: none"> Treated effluent is not discharged in any drains, instead sent to RO Plant. 		0.00 %
(b) Air	<ul style="list-style-type: none"> Stack SO₂ emission (Avg. for the year 2022-23): 11.6 kg/hr against 138 kg/hr. SO₂ in Ambient Air (Avg. for the year 2022-23) : 20.5 µg/m³ against 80 µg/m³ 		0.00 %

PART-D

HAZARDOUS WASTES

(As specified under Hazardous Wastes / Management and Handling Rules, 1989)

Sr. No.	Hazardous waste (Generation)		Total Quantity in Ton	
			During previous financial year April'21 – March'22	During current financial year April'22 – March'23
1.	From Pollution Control Facilities	Oily Sludge	433	937.6
2.	From Process	Spent catalyst	2713.6	3466.76
3.	From Process	Used Oil	70.88	85.02
4.	From Process	Organic Residue	0	85.88
5.	From Process	Spent ion exchange resin	0	28.3

S.H.

PART-E

SOLID WASTES

Sr. No.	Solid Waste Generation		Total Quantity in Ton	
			During the previous financial year April'21 – March'22	During the current financial year April'22 – March'23
(a)	From Process		--	--
(b)	From Pollution control facility		--	--
(c)	(1) Quantity recycled or reutilized Within the unit	Canteen food waste	20	22.1
	(2) Sold		--	--
	(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.

a) Chemical/ Oily Wastes:

- Oily sludge generated from ETPs is thickened in sludge thickeners and same is subjected to centrifuging for separation of chemical/oily and bio sludge.
- Oily sludge is stored in lined pits in covered shed. Oily sludge after Bio-remediation process is used as landfill.

b) Spent Catalyst:

- Spent Catalyst send to Authorized recyclers.

PART-G

Impact of the Pollution Abatement Measures Taken on Conservation of Natural Resources and On the Cost of Production.

1. Greenbelt Development plan (Attached as Annexure-1).
2. Environment Management in Indian Oil Panipat Complex.

R. J. K.

PART-H

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

- Low NOx burners have been installed in all Furnaces in Panipat Naphtha Cracker.
- All stacks are provided with online Sox, NOx, PM and CO analyzers for continuous monitoring.
- Reverse Osmosis Plant uses ETP treated water as its feed for making DM water.
- 08 nos Ambient Air Monitoring Stations are in place in and around the Indian Oil PRPC Complex to monitor Ambient Air Quality.
- In PNC, state-of-the-art Benzene Vapour Recovery System has been provided in Benzene Loading Gantry to avoid emissions of Benzene vapours during operations.
- RLNG is being used as main fuel in Panipat Naphtha Cracker, thereby minimizing SO2 emissions substantially.
- Mobile van is used for ambient air monitoring for nearby villages.
- Green belt of 50m wide strip along 7 km long periphery of Panipat Naphtha Cracker.

PART-I

Any other particulars for improving the quality of environment.

1. Panipat Naphtha Cracker is ISO certified and audited by M/s KBS for Environment Management System under: ISO-14000:2004, OHSAS-18001:2007 & ISO-9001:2008.
2. Environment Awareness Programmes (Attached as Annexure 2).
3. All the licenses applicable to Panipat Naphtha cracker are renewed as per statutory requirement.
4. Indian Oil Panipat Complex is a governing body member of Haryana Environment Management Society.

SBK

ANNEXURE-1

GREENBELT DETAILS AT PANIPAT NAPHTHA CRACKER

Nos. of trees planted during last 3 Financial Years:

<i>Year</i>	<i>No. of trees planted</i>
2018-19	5000
2019-20	512
2020-21	5245
2021-22	1436
2022-23	1552

- **Total no. of trees planted in greenbelt (cumulative) : 98823**

- **Species of Trees planted :**

Eucalyptus, Neem, Jamun, Pilkhan, Champa, Bottle Pam, Ashok, Guava, Bcl, Ficus, Magnolia grandiflora, Mango, Naspati, Amla, Kinoo, benjaminā, Cycus, palm

Detail of Species Planted as on date:

- | | | |
|------------------|-------------------|-------------------|
| 1. Kajjicia | 14. Papri | 27. Budr |
| 2. Shisham | 15. Chukresia | 28. Pipal |
| 3. Neem | 16. Aovla | 29. Kauair |
| 4. Kachvav | 17. Gulmohar | 30. Bogan Ball |
| 5. Jamun / Jamoa | 18. Bottle bram | 31. Aeralvpornis |
| 6. Arjun | 19. Nimboo | 32. Benjamin |
| 7. Alestonia | 20. Amrud | 33. Cassia Shamia |
| 8. Amal Das | 21. Cassia galuca | 34. Toon |
| 9. Kadavb | 22. Safeda | 35. Guddal |
| 10. Kussum | 23. Bail Patthar | 36. Siros |
| 11. Poplar | 24. Chandni | 37. Legestonia |
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| 13. Legestovia | 26. Annar | |

Plk

ANNEXURE-2

Environment Awareness Programmes during the year 2022-23

1. WORLD ENVIRONMENT DAY CELEBRATION (WED) on 05.06.2022

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WED celebration was declared as Carbon Neutral Event and Tree plantation was also carried out. Around 37 saplings planted on this occasion.



(World Environment Day celebration-05th June 2022)



(Prabhat Pheri (Cyclothon) held on World Environment Day, 05th June 2022)

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(Tree plantation on World Environment Day, 05th June 2022)

SLH

2. Earth day on 22.04.2022

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(Earth Day celebration-22nd April 2022)

SRH

3. Tree Plantation on the eve of Mahatma Gandhi Jayanti - 2022

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SBH

