इंडियन ऑयल कार्पोरेशन लिमिटेड
पानीपत रिफाइनरी एवं पेट्रोकेमिकल कॉम्प्लेक्स
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रिफाइनरीज़ प्रभाग
Refineries Division

Ref. No. PNC/HSE/EC Compliance/5

Date: 15.07.2024

To,
The Additional Director(S),
Ministry of Environment, Forest 8& Climate Change, Govt. of India,
Regional Office (NR), Bays No. 24-25, Sector 31-A, Dakshin Marg,
Chandigarh- 160047

Subject: **Six Monthly Environmental Clearances (ECs) Compliance Report- Panipat Naphtha Cracker Complex**

Sir,

Enclosed please find herewith the Six Monthly Environmental Clearances (ECS) Compliance Report- Panipat Naphtha Cracker Complex for the period of January 2024 to Jun 2024 of the MOEFCC stipulations w.r.t. following EC Letters.

1. EC Letter No. J-11011/153/2004-IA II (I) dated 04.01.2005 for Naphtha cracker complex at Panipat Refinery by M/s Indian Oil Corporation Limited at Village Baljatan in district Panipat, Haryana – Environmental clearance registration.
2. EC Letter No. J.11011/106/2012-IA-II (I) dated 23.05.2014 for Butene-1 Project at Panipat Refinery & Petrochem Complex of M/s Indian Oil Corporation Limited (IOCL) at village Balijathan Tehsil Matlauda – Environmental clearance registration.
3. EC Letter. No. J-11011/268/2014-IA.II (I) dated 22.02.2017 for Recovery of Styrene and Synthetic Olefins Production from RFCC and DCU off gases (from Panipat Refinery) and its integration with Naphtha Cracker Unit and Mounded Bullet Storage for C4 Mix at Indian Oil Panipat Refinery & Petrochemical Complex at Panipat, Haryana by M/s Indian Oil Corporation Limited- Environmental clearance registration.
4. EC Letter No. J-110011/106/2012-IA-II(I) dated 16.08.2018 for Capacity expansion of Naphtha Cracker, Mono Ethylene Glycol, HDPE & Polypropylene units and setting up Catalyst Manufacturing Unit by M/s Indian Oil Panipat Refinery & Petrochemical Complex at Panipat Refinery & Petrochemical Complex, Panipat (Haryana) - Environmental clearance registration.
5. EC Letter No. No.J-11011/177/2016-IA II (I) & EC Identification No. EC21A018HR144149 dated 16.12.2021 for Setting up of additional 450 KTA of Polypropylene Production Plant in Existing Naphtha Cracker Complex (Expansion project) - Environmental clearance registration.
6. EC Letter No. IA-J-11011/306/2020-IA-II(I) & EC Identification No EC23A021HR177456 dated 30.01.2023 for expansion by installation of a 60 KTA Poly-Butadiene Rubber (PBR) plant at Panipat Naphtha Cracker Complex, Panipat (Haryana) - Environmental clearance registration.

This is for your information

Thanking you

Yours faithfully,

(P V Ramakrishna) 15/07/24
General Manager (HSE)
For and on behalf of IOCL
Panipat Refinery and Petrochemical Complex

O/C

Enclosures: as above

CC: 1. **The Regional Officer, HSPCB, Panipat**
2. **The Member Secretary, HSPCB, C-11, Sec-6, Panchkula**
3. **The Regional Directorate, CPCB, Chandigarh, 160059**

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S. No.	EC letter Compliance report/Environmental monitoring reports Jan'24 to Jun'24	Annexure
1	Compliance report for EC Letter No. J-11011/153/2004-IA II (I) dated 04.01.2005 for Naphtha cracker complex at Panipat Refinery by M/s Indian Oil Corporation Limited at Village Baljatan in district Panipat, Haryana	Attached as Annexure-A
2	Compliance report for EC Letter No. J.11011/106/2012-IA-II (I) dated 23.05.2014 for Butene-1 Project at Panipat Refinery & Petrochem Complex of M/s Indian Oil Corporation Limited (IOCL) at village Balijathan Tehsil Matlauda – Environmental Clearance.	Attached as Annexure-B
3	Compliance report for EC Letter. No. J-11011/268/2014-IA.II (I) dated 22.02.2017 for Recovery of Styrene and Synthetic Olefins Production from RFCC and DCU off gases (from Panipat Refinery) and its integration with Naphtha Cracker Unit and Mounded Bullet Storage for C4 Mix at Indian Oil Panipat Refinery & Petrochemical Complex at Panipat, Haryana by M/s Indian Oil Corporation Limited.	Attached as Annexure-C
4	Compliance report for EC Letter No. J-110011/106/2012-IA-II(I) dated 16.08.2018 for Capacity expansion of Naphtha Cracker, Mono Ethylene Glycol, HDPE & Polypropylene units and setting up Catalyst Manufacturing Unit by M/s Indian Oil Panipat Refinery & Petrochemical Complex at Panipat Refinery & Petrochemical Complex, Panipat (Haryana).	Attached as Annexure-D
5	Compliance report for EC Letter No. No.J-11011/177/2016-IA II (I) & EC Identification No. EC21A018HR144149 dated 16.12.2021 for Setting up of additional 450 KTA of Polypropylene Production Plant in Existing Naphtha Cracker Complex (Expansion project).	Attached as Annexure-E
6	Compliance report for EC Letter No. IA-J-11011/306/2020-IA-II(I) & EC Identification No EC23A021HR177456 dated 30.01.2023 for expansion by installation of a 60 KTA Poly-Butadiene Rubber (PBR) plant at Panipat Naphtha Cracker Complex, Panipat (Haryana)	Attached as Annexure-F
7	Ambient Air quality data.	Attached as Annexure-1
8	Stack Emission data	Attached as Annexure-2
9	Effluent quality data	Attached as Annexure-3
10	Noise Monitoring data	Attached as Annexure-4

PANIPAT NAPHTHA CRACKER PROJECT

Environmental Clearance No.J-11011/153/2004-IA II (I) dated 4.1.2005 from Ministry of Environment & Forests

Six-monthly compliance report (Jan'24- Jun'24)

A. Specific Conditions

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
I)	The gaseous emissions (SO_2, NO_x and HC, Benzene) from the various process units should conform to the standards prescribed under Environment (Protection) Rules, 1986 or norms stipulated by the SPCB whichever is more stringent. At no time, the emission level should go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.	Gaseous Emissions are well within limits as per standards prescribed
II)	Adequate ambient air quality monitoring stations (SPM, SO2, NOx and HC, Benzene) should be set up in the Naphtha Cracker Complex in consultation with SPCB, based on occurrence of maximum ground level concentration and down-wind direction of wind i.e. maximum impact zone. The monitoring network must be decided based on modeling exercise to represent short term GLCs. Continuous on-line stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC should be monitored and submitted to the SPCB/Ministry.	Ambient air quality being monitored for compliance through ambient air quality monitoring stations installed according maximum impact zone. Continuous online stack monitoring analyzers are being used for measurement of SO2 and NO_x. VOC Monitoring being done quarterly and six monthly submissions to HSPCB/Ministry.
III)	Measures for fugitive control should be taken by installation of internal floating roof tanks for storage of liquid HCs and provision of double mechanical seals to all pumps handling high vapor pressure materials, sensors for detecting HC/toxic gas leakages at strategic locations, regular inspection of floating roof seals, maintenance of valves and other equipments and regular skimming of separators/ equalization basin.	Complied
IV)	All new standards/norms that are being proposed by CPCB for petrochemical plants shall be applicable for the proposed Naphtha Cracker and downstream polymer units. The company shall conform to the proposed process vent standards for organic chemicals including non-VOCs and all possible VOCs i.e. TOCs standard and	Complied

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	process vent standards for top priority chemicals. The company shall install online monitors for VOC measurements. Action on the above should be taken during the detailed design stage of the NCC. The project authorities shall take necessary measures to comply with the above proposed emission norms including monitoring facilities and intimate the same to the Ministry.	
V)	M/s IOCL shall adopt Leak Detection And Repair (LDAR) programme for quantification and control of fugitive emissions.	Complied
VI)	The company shall also ensure that the total SO_2 emission from the NCC shall not exceed 138 kg/hr during the normal operations	Total SO_2 emission is well within the limit of 138 Kg/hr.
VII)	To mitigate NO_x emission, the company shall install low NO_x burners.	Low NO_x burners are in operation to mitigate NO_x emission
VIII	The waste water effluent from the NCC should not exceed 750 M3/Hr. The waste water shall be segregated in different streams at the source. The treated effluent should comply with the standards stipulated by HSPCB/CPCB for discharge on land for irrigation. The treated effluent should be used for cooling service, greenbelt, dust suppression and firewater. As per the commitment given, there should be zero effluent discharge due to the proposed project. The company should ensure that there will be no discharge of treated effluent into Thirana drain.	Complied
IX)	The oily sludge generated from the ETP after oil recovery shall be taken to the existing refinery facilities for further treatment and disposal into the secured landfill. The spent catalyst shall be disposed off into the secured landfill facility. The design of the secured landfill site shall be as per the central pollution control board guidelines. The company shall firm up the plan for construction of hazardous waste facility within the NCC or send the hazardous waste to secured Landfill site being developed by the Haryana Environmental Management society. The final plan during detailed design stage of NCC for construction of hazardous waste management facility shall be submitted to the Ministry.	Having the Secured Landfill provision within the Indian Oil Panipat Complex at Refinery site. Further, as an alternative, the membership/registration with the HEMS-GEPIL, Haryana is available for disposal of Hazardous Waste.
X)	Green belt should be provided to mitigate the effects of fugitive emissions all around the plant in an area of 40 ha. In addition to 240 ha. of area already afforested in consultation with DFO as per CPCB guidelines.	Green belt of 40 ha area has been provided all around the plant to mitigate the effects of

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	Green belt in the NW direction should be strengthened keeping in view the winds from SE and E direction. The trees should be planted in both sides of approach roads and truck parking area.	fugitive emissions. Density of Green belt in the NW direction has also been increased. Further, plantation being done on both sides of approach roads and truck parking area.
XI)	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per Factories Act.	Complied.

B. General Conditions

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
I)	The project authorities must strictly adhere to the stipulations made by Haryana State Pollution Control Board and State Government.	Complied
II)	No further expansion or modification of the plant should be carried out without prior approval of Ministry of Environment & Forests.	Approval of MoEF&CC will be obtained for future expansion, if any.
III)	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	Complied
IV)	All the recommendations made in the EIA/EMP and risk assessment report should be implemented.	Complied
V)	The overall noise levels in and around the plant area should be kept well within the standards (85dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Acoustic hoods, silencers, enclosures etc. on all sources of noise generation have been provided to meet the required noise stipulations.
VI)	The Project Authorities must strictly comply with the provisions made in manufacture, storage and Import of Hazardous chemicals Rules 1989, as amended in 2000 for handling of Hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commissioning of the project.	Complied, CCE /PESO approval is available

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
VII)	The Project Authorities must strictly comply with the rules and regulations with regard to handling and disposal of Hazardous wastes, in accordance with the Hazardous waste (Management and Handling) Rules, 2003. Authorization from State Pollution Control Board must be obtained for conditions/ treatment/ storage/disposal of hazardous wastes.	Complied
VIII)	The Project Authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment & Forests as well as the State government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Complied
IX)	The stipulated conditions will be monitored by the Regional office of this Ministry at Chandigarh/ Central Pollution Control Board/ State Pollution Control Board. A six monthly compliance status report and the monitored data should be submitted to them regularly.	complied
X)	The project proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry and Forests at http://www.envfor.nic.in. This should 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 should be forwarded to the regional office.	complied
XI)	The Project Authorities should 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 land development work.	Complied, Date of financial closure of all project is 31st March every year

BUTENE-1 PROJECT AT PANIPAT REFINERY & PETROCHEMICAL COMPLEX

Environmental Clearance No. J-11011/106/2012-IA-II (I) dated 23.05.2014 from Ministry of Environment & Forests

Six-monthly compliance report (Jan'24- Jun'24)

A. Specific Condition

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
I)	All the specific conditions and general conditions specified in the earlier environmental clearance letters accorded vide Ministry's letter nos. J-11011/27/91-IA-II (I) dated 16th July 1992, J-11011/60/2000-IA-II (I) dated 9th April, 2001, J-11011/52/2000-IA-II (I) dated 30th April, 2001, J-11011/9/2001-IA-II (I) dated 6th December,2001, J-11011/153/2004-IA-II (I) dated 4th January, 2005 and J-11011/7/2004-IA-II (I) dated 9th August, 2004 shall be complied with.	Complied. Compliance status of all the conditions of these ECs as per reports sent to MoEFCC.
II)	M/s Indian Oil Corporation Limited shall comply with new standards/norms for Oil Refinery Industry and petrochemical industry notified under the Environment (Protection) Rules, 1986.	Complied
III)	Continuous on-line stack monitoring for SO2, NOx and CO of all the stacks shall be carried out. Low NOx burners shall be installed.	No heater/ Furnace is installed in this project.
IV)	The Emission standards prescribed by the MoEF under Environment (Protection) Act for petrochemical industry shall be strictly followed. At no time, the emission levels shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack emissions shall be monitored regularly.	Complied This project does not have any furnace. However the total emission of PNC including this project is well within the limit of 138 Kg/hr.
V)	Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.	Complied Leak Detection and Repair programme is conducted by external agency quarterly. Sensors for detection of HC leak are provided at strategic locations.
VI)	Continuous monitoring system for VOCs at all important places/areas shall be ensured. When monitoring results indicate above the permissible limits, effective measures shall be taken immediately.	Complied as stated above.

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
VII)	SO2 emissions after implementation of Butene-1 shall not exceed 138kg/hr.	Complied Total emission of PNC including this project is well within the limit of 138 Kg/hr.
VIII	Record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur) atmospheric emissions etc.	This project does not have sulphur plant or any raw material having 'Sulphur'. Also there is no furnace.
IX)	Ambient air quality monitoring stations, [PM 10, Pm2.5, SO2, NOx, H2S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Haryana State Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs.	Ambient air quality being monitored for compliance through ambient air quality monitoring stations installed according maximum impact zone.
X)	Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry on 16th November, 2009 and trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	Ambient air quality data is collected as per NAAQS standards.
XI)	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure/silencer shall be installed wherever noise levels exceed the limit.	There is no DG set proposed in Butene-1 plant.
XII)	Total fresh water requirement from Yamuna Canal shall not exceed 1813 m3/hr and prior permission shall be obtained from the concerned agency. No ground water shall be used.	Complied
XIII)	Industrial effluent shall be treated in the effluent treatment plant. Treated effluent shall be recycled/reused in the existing cooling tower. Water quality of treated effluent shall be monitored regularly.	There is no effluent generation in the BUTENE-1 Plant
XIV)	Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Butene-1 plant does not have any Oil Catcher and also not required.
XV)	The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules,	Complied

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	2008 and amended time to time.	
XVI)	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	Complied
XVII)	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	Complied
XVIII)	To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.	Complied
XIX)	Additional 25000 trees shall be planted to increase the greenbelt coverage. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.	Complied
XX)	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	Complied
XXI)	All the issues raised and commitment made during the public hearing/consultation meeting held on 23rd August, 2013 shall be satisfactorily implemented. Accordingly, provision of budget to be kept.	Complied
XXII)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied
B.	**General Conditions**	
I)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	Complied
II)	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alteration 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.	Approval of MoEF&CC will be obtained for future expansion, if any.
III)	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.	Complied PESO approval is available.
IV)	The overall noise level in and around the plant area shall be kept	Complied

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	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 EPA Rules, 1989 viz. 75 dBA(daytime) and 70 dBA (night time).	Continuous Noise monitoring is done.
V)	A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	Complied
VI)	Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	Complied Reported in environment statements.
VII)	The Regional office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Complied
VIII)	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Complied The communication to local Panchayat has been done on 31.07.2014.
IX)	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM10,PM2.5,SO2,NOx,HC (Methane & Non-Methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Complied Ambient air data is displayed at Main gate.
X)	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal office of CPCB and the SPCB. The Regional Office of this Ministry/CPCB/SPCB shall monitor the stipulated conditions.	Complied
XI)	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent 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	Complied Environment Statement is sent to HSPCB & MoEFCC, RO every year.

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of MOEF by e-mail.	
XII)	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 and may also be seen at website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspaper 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 Regional office.	Complied The message has been circulated through AMAR UJALA & THE TRIBUNE on 05.08.2014.
XIII)	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 commencing the land development work.	Complied, Date of financial closure of all project is 31st March every year
XIV	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted
XV	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Complied
XVI	The above conditions will be enforced, inter-alia under the provision of the water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of water pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Complied

ERU/SRU Project at Panipat Refinery & Petrochemical Complex

Environmental Clearance No. J-11011/268/2014-IA.II (I) dated 22.02.2017 from Ministry of Environment & Forests

Six-monthly compliance report (Jan'24- Jun'24)

A. Specific conditions

S.No	Conditions stipulated in the EC letter	Status/Action Plan
I	The Ministry vide G.S.R 608 (E) dated 21st july 2010 and amended time to time has prescribed emission and effluent standards that shall be complied by the unit.	Complied
II	Compliance to all environmental conditions stipulated in the environmental clearance shall be satisfactorily implemented and compliance reports submitted to the Ministries regional office of Moef&cc	Complied, All the conditions of these ECs as per reports sent to MoEFCC.
III	All Pollution control and monitoring equipment shall be installed tested and interlocked with the process equipment. SPCB shall grant Consent to operate after ensuring that all the maintenance Pollution control equipments, construction of storm water drain , rainwater harvesting structure , green belt, uploading of Compliance report on the website etc have been implemented.	Complied, CTO granted by HSPCB Ref. no. HSPCB/Consent/ : 313105822PITCTO25464308 & Valid up to 30.09.2027
IV	SO2 emission after expansion from the plant shall not exceed 138kg/hr and further efforts shall be made for reducing of SO2 load through use of low sulphur fuel , sulphur recovery units shall be installed for control of H2S emission.	Complied, Total emission of PNC including this project is well within the limit of 138 Kg/hr.
V	Ambient Air quality data shall be collected as per NAAQS standards notified by the Ministry vide G.S.R No. 826 (E) Dated 16.September, 2009 .The levels of PM10,PM2.5, SO2,NOX,VOC and CO shall be monitored in the Ambient Air and emission from the stacks and displayed at a convenient location near the main gate of the company and at important public places . The company shall upload the results of monitored data in its website and shall update the same periodically .It shall simultaneously be sent to the reginal office of MOEF, The respective zonal of CPCB and the State Pollution control Board (MPCB).	Complied
VI	In Plant control measures for checking Fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage handling.	Complied
VII	The gaseous emission from D G set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to The D G sets to mitigate the noise pollution.	No DG set envisaged in this project.
VIII	Total fresh water requirement from the canal shall not exceed 1700m3/hr (annual average) and prior permission shall be obtained from the competent authority. No ground water shall be used without permission.	Complied
IX	The marginal waste water from SRU & ERU plant shall be sent	Complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
	to ETP/RO plant. Effluent stream shall be treated in the comprising primary, secondary and tertiary treatment facility ETP. As proposed RO plant shall be employed to treat 140m3/hr	
X	Automatic /online monitoring system (24x7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the company's website.	Online connectivity of all analyzers of stacks (PM, SO2, NOx, CO,) and ETP effluent (PH, TSS, COD, BOD) is available to CPCB and HSPCB. Public access is also available on HSPCB e-portal.
XI	Adequate odour management plan and its mitigation measure to be implemented on priority.	Complied
XII	Regular VOC monitoring to be done at vulnerable points.	Complied
XIII	The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system	Complied
XIV	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme	Complied
XV	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Complied
XVI	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	Complied
XVII	The company shall strictly comply with the rules and guidelines under Hazardous and other wastes (Management and Trans-Boundary Movement) Rules,2016 as amended time to time All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989	Complied
XVIII	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.	Complied
XIX	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied
XX	At least 2.5% of the total project cost shall be earmarked towards Enterprise social commitment (ESC) based on local needs and action plan with financial and physical break up /details shall be prepared and submitted to the Ministry's Regional Office at Bhopal . Implementation of such program shall be ensure accordingly in a time bound manner.	Complied
XXI	As proposed green belt over33% shall be developed within plant premises with at least 10 meter wide green belt on all	Complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
	sides along the periphery of the project area, 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.	

B. GENERAL CONDITIONS

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
I	The project authorities shall adhere to the stipulations made by the State Pollution Control Board. Central Pollution Control Board, state Government and any other Statutory authority.	Complied
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 his Ministry for clearance a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environment protection measures required, if any.	Approval shall be obtained of MoEFCC for future expansion, 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.	Complied
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.	Complied
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).	Complied
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.	Complied
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.	Complied
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.	Complied
IX	The company shall undertaken all relevant measures for improving the socio-economic conditions of the surrounding area. CSR	Complied

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
	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.	Complied
XI	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Complied
XII	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 conditions stipulated herein. The funds so earmarked for environment management/pollution control measures shall not be diverted for any other purpose.	Complied
XIII	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
XIV	The project proponent shall also submit six monthly reports on the status of compliance of the Stipulated Environment Clearance conditions including results of monitored data (both in hard copies as well as by email) to the respective Regional Office of MoEFCC, the respective Zonal Office of CPCB and SPCB. A copy of Environment Clearance and six monthly compliance status be posted on the website of the company.	Complied
XV	The Environment statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned state Pollutions Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of company along with the status of compliance of Environmental Clearance conditions and shall be sent to the respective Regional Officers of MoEFCC&CC by email.	Complied Environment Statement is sent to HSPCB & MoEFCC, RO every year
XVI	The project proponent shall inform the public that the project has been accorded environment 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://envfor.nic.in/. This shall be advertised within seven days from the date of issue of the Clearance letter, at least in two local newspaper 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.	Complied and informed
XVII	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.	Complied, Date of financial closure of all project is 31st March every year

Annexure-D

Capacity expansion Project of Naphtha Cracker at Panipat Refinery & Petrochemical Complex

Environmental Clearance No. J-110011/106/2012-IA-II(I) dated 16.08.2018 from Ministry of Environment & Forests

Six-monthly compliance report (Jan'24- Jun'24)

GENERAL CONDITIONS

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
I	The project authorities shall adhere to the stipulations made by the State Pollution Control Board. Central Pollution Control Board, state Government and any other Statutory authority.	Complied
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 his Ministry for clearance a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environment protection measures required, if any.	Approval of MoEF&CC will be obtained for future expansion, 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.	Complied
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.	Complied
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).	Complied
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.	Complied
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.	Complied
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.	Complied
IX	The company shall undertake all relevant measures for improving the	Complied

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
	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.	Complied
XI	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Complied
XII	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 conditions stipulated herein. The funds so earmarked for environment management/pollution control measures shall not be diverted for any other purpose.	Complied
XIII	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
XIV	The project proponent shall also submit six monthly reports on the status of compliance of the Stipulated Environment Clearance conditions including results of monitored data (both in hard copies as well as by email) to the respective Regional Office of MoEFCC, the respective Zonal Office of CPCB and SPCB. A copy of Environment Clearance and six monthly compliance status be posted on the website of the company.	Complied
XV	The Environment statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned state Pollutions Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of company along with the status of compliance of Environmental Clearance conditions and shall be sent to the respective Regional Officers of MoEFCC&CC by email.	Complied
XVI	The project proponent shall inform the public that the project has been accorded environment 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://envfor.nic.in/. This shall be advertised within seven days from the date of issue of the Clearance letter, at least in two local newspaper 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.	Complied and informed (Already published in two newspapers on 05.09.18)
XVII	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.	Complied, Date of financial closure of all project is 31st

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
		March every year.

TERMS & CONDITIONS

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
I	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	CTO received on 15.11.2022
II	As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.	Complied
III	Necessary authorization required under the Hazardous and other wastes (management and Trans-Boundary Movement) Rules,2016 and solid waste management Rules,2016 shall be obtained and the provisions contained in the Rules, shall be strictly adhered to.	Hazardous & other waste authorization available with validity up to 30.09.2026. Authorization ref. No.: HWM/PIT/2021/11695733
IV	National emission Standard for Organic Chemicals Manufacturing industries issued by the Ministry vide G.S.R. 608 (E) dated 21st July'2010 and amended from time to time be followed.	Not applicable. Emission standards of Petrochemical industries are followed.
V	To control source and the fugitive emissions, suitable pollutions control devices shall be installed with different stacks to meet the prescribed norms and/or the NAAQS. The gaseous emissions shall be dispersed through stacks of adequate height as per CPCB/SPCB guidelines.	Complied
VI	Total fresh water requirement shall not exceed 47955 cum/day to be met from western Yamuna Canal. Necessary permission in this regard shall be obtained from the concerned regulatory authority.	Complied
VII	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Complied
VIII	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	Complied
IX	Process organic residue and spent carbon. If any shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufactures/cement industry.	Disposal of ETP sludge and spent carbon is done as required in accordance with the HWM rules 2016. There is no ash generation as no solid fuel is used.
X	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	Complied

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
	of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	
XI	Regular VOC monitoring to be done at vulnerable points.	VOC monitoring is done by MoEFCC authorized agency under LDAR program.
XII	The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system.	Complied
XIII	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme.	Complied
XIV	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Complied
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. (f) Use of high pressure hoses for equipment clearing to reduce Waste water generation.	Complied
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.	Complied
XVII	At least 0.25% of the total project cost shall be allocated for Corporate Environment Responsibility (CER) and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	Complied
XVIII	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.	Complied
XIX	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.	Complied
XX	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	Complied

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
	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. In case of the treated effluent to be utilized for irrigation/gardening, real time monitoring system shall be installed at the ETP outlet.	
XXI	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied

Setting up of additional 450 KTA of Polypropylene Production Plant in the Existing Naphtha Cracker Complex

Environmental Clearance No. J-11011/177/2016-IA.II(I) & EC Identification No. EC21A018HR144149 dated 16.12.2021 from Ministry of Environment & Forests

Six-monthly compliance report (Jan'24- Jun'24)

A. SPECIFIC CONDITIONS

S.No	Conditions stipulated in the EC letter	Status/Action Plan
I	Existing naphtha cracker complex shall adhere to complete ZLD.	Will be Complied
II	The company shall 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.	Will be Complied
III	Total fresh water requirement shall not exceed 47040 m3/day and it will be met from Western Yamuna Canal. Necessary permission in this regard shall be obtained from the concerned regulatory authority. The fresh water requirement shall be reduced after installation of rainwater harvesting system in the Unit/project area.	Will be Complied
IV	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC. Outcome from the report to be implemented for conservation scheme.	Will be Complied
V	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Will be Complied
VI	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	Will be Complied
VII	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufacturers/cement industry.	Will be Complied
VIII	Regular VOC monitoring shall be done at vulnerable points.	Will be Complied
IX	The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system.	Will be Complied
X	Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Will be Complied
XI	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. f) Use of high pressure hoses for equipment cleaning etc. to reduce wastewater generation.	Will be Complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
XII	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.	Will be Complied
XIII	As per the Ministry's OM dated 30.09.2020 superseding the OM dated 01.05.2018 regarding the Corporate Environmental Responsibility, and as per the action plan proposed by the project proponent to address the socio-economic and environmental issues in the study area, the project proponent, as committed, shall provide education funds in technical training centers/ support in nearby village's schools, support in health care facilities, drinking water supply and funds for miscellaneous activities like solar street lights, battery, solar panel etc., in the nearby villages. The action plan shall to be completed within time as proposed.	Will be Complied
XIV	The project proponent shall ensure 70% of the employment to the local people, as per the applicable law. The project proponent shall set up a skill development center/provide skill development training to village people.	Will be Complied
XV	A separate Environmental Management Cell (having qualified person with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Will be Complied
XVI	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.	Will be Complied
XVII	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. In case of the treated effluent to be utilized for irrigation/gardening, real time monitoring system shall be installed at the ETP outlet.	No furnace & boiler is installed in this project. No waste water will be generated from this project.
XVIII	PP to set up occupational health Centre for surveillance of the worker's health within and outside the plant on a regular basis. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.	Will be Complied
XIX	The National Emission Standards for Petrochemical (Basic & Intermediates) issued by the Ministry vide G.S.R. 820 (E) dated 9th November, 2012 as amended time to time shall be followed.	Will be Complied
XX	Recommendations of mitigation measures from possible accident shall be implemented based on Risk Assessment studies conducted for worst case scenarios using latest techniques.	Will be Complied
XXI	The project proponent shall develop R& D facilities to develop their own technologies for propylene and polypropylene processing.	Will be Complied

B. GENERAL CONDITIONS

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
I	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. 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/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Will be Complied
II	The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.	Will be Complied
III	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 the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Will be Complied
IV	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Will be Complied
V	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.	Will be Complied
VI	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.	No suggestions / representations were received while processing the proposal for EC.
VII	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.	Will be Complied

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
VIII	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.	Will be Complied
IX	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 and at https://parivesh.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.	Public notice was issued in Tribune and Denik Bhaskar newspaper on 21.12.2021.
X	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.	Will be Complied

Expansion by Installation of a 60 KTA Poly-Butadiene Rubber (PBR) plant at Panipat Naphtha Cracker Complex, Panipat (Haryana)

Environmental Clearance No. IA-J-11011/306/2020-IA-II(I) & EC Identification No. EC23A021HR177456 dated 30.01.2023 from Ministry of Environment & Forests

Six-monthly compliance report (Jan'24-Jun'24)

A. SPECIFIC CONDITIONS

S.No	Conditions stipulated in the EC letter	Status/Action Plan
I	Adequate stack height as per CPCB/SPCB guidelines shall be provided. Stack emission levels shall be stringent than the existing standards i.e. PM < 50 mg/Nm3; SOx < 50 mg/Nm3 and NOx < 100 mg/Nm3.	Will be Complied
II	CEMS shall be installed and connected to SPCB/CPCB Server.	Will be Complied
III	Effective fugitive emission control measures shall be adopted in the process, transportation, packing etc.	Will be Complied
IV	Transportation of materials by rail/conveyor belt, wherever feasible, shall be explored	Will be Complied
V	RLNG shall be proposed as a primary fuel in the proposed Thermal oxidizer.	Will be Complied
VI	The best available technology shall be used.	Will be Complied
VII	The PP shall develop an additional greenbelt over an area of at least 7. 3 ha, by planting approx. 18250 numbers of saplings within a year of grant of EC. The saplings selected for the plantation should be of sufficient height, preferably 6-ft. The budget earmarked for the plantation shall be kept in a separate account and should be audited annually. The PP should annually submit the audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the EC Identification No. - EC23A021HR177456 File No. - IA-J-11011/306/2020-IA-II(I) Date of Issue EC - 30/01/2023 Page 6 of 11 Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.	Will be Complied
VIII	The transportation load on roads shall be within their carrying capacity and adequate width of roads shall be maintained inside the industrial premises.	Will be Complied
IX	The existing effluent shall be treated and 100% reused within the premises and the proposed effluent shall also be treated and reused in the process application. Additionally, approx 100 KLD domestic waste water shall be generated after commissioning of the PBR plant, which shall be treated in the proposed ETP along with the treatment of processed wastewater.	Will be Complied
X	Continuous monitoring of effluent quality/quantity shall be done through online (OCEMS) mode. Further, the effluent monitoring shall be done once in a month by the MOEF&CC authorized agency. The OCEMS shall be connected to SPCB/CPCB server as well, to comply with the norms.	Will be Complied
XI	The rainwater from part of the rooftops shall be diverted using rain water pipes to the surface and via a storm water drain network. 2 (new)	Will be Complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
	rainwater harvesting pits with an area of 3000 m2 and recharge potential of 1200 m3 shall be constructed for the proposed PBR Project. No recharge shall be permitted within the premises. Process effluent/ any wastewater shall not be allowed to mix with storm water.	
XII	No Fly ash, slag and red mud shall be generated from the existing as well as from the proposed PBR plant.	Will be Complied
XIII	The hazardous waste (Molecular Sieve waste, waste rubber (0.50% basis), ETP sludge) shall be collected, stored, transported, and disposed to TSDF/co-processing. The waste should be preferably utilized in co-processing.	Will be Complied
XIV	Monitoring of the compliance of EC conditions shall be submitted with third party audit every year.	Will be Complied
XV	An amount of ₹ 84 lakhs shall be allocated towards CER for diverting the drain channel opposite to CISF colony towards D-2 drain.	Will be Complied
XVI	A separate Environmental Management Cell (having qualified persons with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions. PP shall engage GM (HS&E), DGM (HS&E), CM, SM, M, AM and Officers. In addition to this one safety & health officer as per the qualification given in Factories Act 1948 shall be engaged within a month of grant of EC. PP should annually submit the audited statement of amount spent towards the engagement of qualified persons in EMC along with details of person engaged to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.	Will be Complied
XVII	The company shall 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. The budget propose under EMP is ₹ 32137.14 Lakhs (Capital cost) and ₹ 281.44 lakhs per annum (Recurring cost) shall be kept in separate EC Identification No. - EC23A021HR177456 File No. - IA-J-11011/306/2020-IA-II(I) Date of Issue EC - 30/01/2023 Page 7 of 11 account and should be audited annually. The PP should submit the annual audited statement along with proof of implementation of activities proposed under EMP duly supported by photographs (before & after with geo-location date & time) and other document as applicable to the Regional Office of MoEF&CC before 1st July of every year for the activities carried out during previous year.	Will be Complied
XVIII	The total water requirement is 74,652 KLD (4,572 KLD for PBR project) of which fresh water requirement of 50192 KLD (3,192 KLD for PBR project) will be met from Western Yamuna Canal. The PP should ensure that water supply should not be above the permissible limit as mentioned in the letter and fresh water shall be withdrawn only after obtaining valid agreement from Concerned Authority. The PP should submit the details of utilization to the Integrated Regional Office (IRO), MoEF&CC before 1st July of every year for the activities carried out during the previous year.	Will be Complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
XIX	No banned chemicals shall be manufactured by the project proponent. No banned raw materials shall be used in the unit. The project proponent shall adhere to the notifications/guidelines of the Government in this regard.	Will be Complied
XX	The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard	Will be Complied
XXI	All necessary precautions shall be taken to avoid accidents and action plan shall be implemented for avoiding accidents. The project proponent shall implement the onsite/offsite emergency plan/mock drill etc. and mitigation measures as prescribed under the rules and guidelines issued in the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.	Will be Complied
XXII	The volatile organic compounds (VOCs)/Fugitive emissions shall be controlled at 99.97 % with effective chillers/modern technology. Regular monitoring of VOCs shall be carried out	Will be Complied
XXIII	The storage of toxic/hazardous raw material shall be bare minimum with respect to quantity and inventory. Quantity and days of storage shall be submitted to the Regional Office of Ministry and SPCB along with the compliance report.	Will be Complied
XXIV	The occupational health centre for surveillance of the worker's health shall be set up. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.	Will be Complied
XXV	Training shall be imparted to all employees on safety and health aspects for handling chemicals. Safety and visual reality training shall be provided to employees. Action plan for mitigation measures shall be properly implemented based on the safety and risk assessment studies	Will be Complied
XXVI	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.	Will be Complied
XXVII	The solvent management shall be carried out as follows: (a) Reactor shall be connected to chilled brine condenser system. (b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages. (c) Solvents shall be stored in a separate space specified with all safety measures. (d) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done. (e) Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses. (f) All the solvent storage tanks shall be connected with vent condensers with chilled brine circulation.	Will be Complied
XXVIII	The PP 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.	Will be Complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
	(e) Venting equipment through vapour recovery system. (f) Use of high pressure-hoses for equipment cleaning to reduce wastewater generation	
XXIX	The activities and the action plan proposed by the project proponent to address the issues raised during the public hearing as well as the related socio-economic issues in the study area shall be completed as per the schedule presented before the Committee and as described in the EIA report in letter and spirit.	Will be Complied

B. GENERAL CONDITIONS

Sr. No.		Status/Action Plan
I	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. 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/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Will be Complied
II	The Project proponent shall strictly comply with the rules and guidelines issued under the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, and Hazardous and Other Wastes (Management and Trans Boundary Movement) Rules, 2016 and other rules notified under various Acts.	Will be Complied
III	The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.	Will be Complied
IV	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 the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Will be Complied
V	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. The activities shall be undertaken by involving local villages and administration. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Will be Complied
VI	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	Will be Complied

Sr. No.		Status/Action Plan
	conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	
VII	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.	Will be Complied
VIII	The project proponent shall also upload/submit six monthly reports on Parivesh Portal on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data to the respective Integrated 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.	Will be Complied
IX	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 Integrated Regional Office of MoEF&CC by e-mail.	Will be Complied
X	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 and at https://parivesh.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.	Will be Complied
XI	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.	Will be Complied
XII	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.	Will be Complied

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Website : www.aalkundli.com

TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL ENV-20240531008
		Date of Receiving:	31/05/2024
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Starting:**	31/05/2024
Sampling Method:	IS:5182 (Part-14)-2000	**Date of Completion:**	05/06/2024
Work order Item:	Panipat Naphtha Cracker (Table-V)	**Date of Reporting:**	05/06/2024
Sampling Location:	**Roof of Quality Control Lab**	**Sampling Duration:**	24:00 Hrs
		Sampling Done By:	AAL

TEST RESULT

Test Parameters→ Date of Sampling↓		$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	CO (mg/m³)	O_3 (µg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	C_6H_6 (µg/m³)	As (ng/m³)	Ni (ng/m³)	B(a)P (ng/m³)
1	02/05/2024	45.3	87.2	16.4	25.1	0.85	28.1	21.3	ND	1.10	ND	ND	ND
2	06/05/2024	48.9	85.3	14.7	24.4	0.95	26.9	24.5	ND	1.18	ND	ND	ND
3	09/05/2024	49.8	84.6	15.9	23.8	0.87	27.8	23.8	ND	0.95	ND	ND	ND
4	13/05/2024	46.7	89.7	14.8	22.4	1.02	25.4	22.3	ND	1.05	ND	ND	ND
5	16/05/2024	42.9	90.3	13.4	25.3	1.06	26.7	23.6	ND	0.95	ND	ND	ND
6	20/05/2024	45.1	84.4	11.5	21.8	1.02	28.3	21.9	ND	0.92	ND	ND	ND
7	23/05/2024	44.8	79.9	12.3	23.9	0.84	27.6	23.2	ND	0.90	ND	ND	ND
8	27/05/2024	49.2	83.5	13.7	22.4	0.88	25.5	22.8	ND	1.16	ND	ND	ND
9	30/05/2024	46.4	86.6	12.9	25.5	0.91	27.8	23.4	ND	1.18	ND	ND	ND
Maximum		**49.8**	**90.3**	**16.4**	**25.5**	**1.06**	**28.3**	**24.5**	-	**1.18**	-	-	-
Minimum		**42.9**	**79.9**	**11.5**	**21.8**	**0.84**	**25.4**	**21.3**	-	**0.9**	-	-	-
Average		**46.6**	**85.7**	**14.0**	**23.8**	**0.93**	**27.1**	**23.0**	-	**1.04**	-	-	-
NAAQ Standard		**60***	**100***	**80***	**80***	**2****	**100****	**400***	**1***	**5*****	**6*****	**20*****	**1*****

****End of Report****

Remarks: - (*) 24 Hour Average (**) 8 Hours Average (***) Annual Average
ND=Not Detected, DL= Detection Limit,

Test Method as Follows:-
Particulate Matter, $PM_{2.5}$ - IS-5182(P-24)-2019, Particulate Matter, PM_{10} - IS-5182(P-23)-2006, Sulphur Dioxide (as SO_2)- IS-5182 (P-2)-2001, Nitrogen Dioxide (as NO_2) - IS-5182(P-6)-2006, Carbon Monoxide (as CO) - IS-5182(P-10)-1999, Ozone (as O_3) - IS-5182(P-9)-1974, Ammonia (as NH_3) - IS-5182(P-25)-2018, Lead (as Pb) - IS-5182(P-22)-2004, Nickel (as Ni) - AAL/SOP/008, Arsenic (as As) - IS-5182(P-22)-2004, Benzene (as C_6H_6) - IS-5182(P-11)-2006, Banzo a-pyrene (BaP) - IS-5182(P-12)-2004

Detection Limit as Follows:-
Particulate Matter, $PM_{2.5}$ - 5 µg/m³, Particulate Matter, PM_{10} -10 µg/m³, Sulphur Dioxide (as SO_2)- 5 µg/m³, Nitrogen Dioxide (as NO_2) - 4 µg/m³, Carbon Monoxide (as CO)- 0.5 mg/m³, Ozone (as O_3) - 20 µg/m³, Ammonia (as NH_3) - 20 µg/m³, Lead (as Pb) - 0.1 µg/m³, Nickel (as Ni)- 1.0 ng/m³, Arsenic (as As) - 1.0 ng/m³, Benzene (as C_6H_6) - 1.0 µg/m³, Banzo a-pyrene (BaP) - 0.5 ng/m³

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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Website : www.aalkundli.com

TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL ENV-20240430011
		Date of Receiving:	30/04/2024
		Date of Starting:	30/04/2024
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Completion:**	06/05/2024
Sampling Method:	IS:5182 (Part-14)-2000	**Date of Reporting:**	06/05/2024
Work order Item:	Panipat Naphtha Cracker (Table-V)	**Sampling Duration:**	24:00 Hrs
Sampling Location:	**Roof of Quality Control Lab**	**Sampling Done By:**	AAL

TEST RESULT

Test Parameters→ / Date of Sampling↓		$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	CO (mg/m³)	O_3 (µg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	C_6H_6 (µg/m³)	As (ng/m³)	Ni (ng/m³)	B(a)P (ng/m³)
1	01/04/2024	49.6	90.7	14.5	23.8	0.95	25.2	23.2	ND	1.00	ND	ND	ND
2	04/04/2024	46.8	82.4	16.3	21.4	0.90	28.6	21.5	ND	1.15	ND	ND	ND
3	08/04/2024	54.7	95.2	15.4	25.3	0.95	31.4	24.5	ND	1.10	ND	ND	ND
4	11/04/2024	50.1	92.5	13.2	20.2	1.08	32.8	20.7	ND	1.12	ND	ND	ND
5	15/04/2024	52.3	96.4	14.8	26.3	1.05	30.5	22.8	ND	0.98	ND	ND	ND
6	19/04/2024	46.3	82.6	10.9	22.4	1.00	27.7	20.9	ND	1.08	ND	ND	ND
7	22/04/2024	42.7	84.5	13.5	21.5	0.80	29.8	22.3	ND	1.12	ND	ND	ND
8	25/04/2024	47.9	91.7	14.3	23.7	0.90	31.5	21.6	ND	1.18	ND	ND	ND
9	29/04/2024	49.1	93.4	16.8	24.6	0.95	32.7	25.8	ND	1.10	ND	ND	ND
Maximum		**54.7**	**96.4**	**16.8**	**26.3**	**1.08**	**32.8**	**25.8**	-	**1.18**	-	-	-
Minimum		**42.7**	**82.4**	**10.9**	**20.2**	**0.80**	**25.2**	**20.7**	-	**0.98**	-	-	-
Average		**48.8**	**89.9**	**14.4**	**23.2**	**0.95**	**30.0**	**22.6**	-	**1.09**	-	-	-
NAAQ Standard		60*	100*	80*	80*	2**	100**	400*	1*	5***	6***	20***	1***

****End of Report****

Remarks: - (*) 24 Hour Average (**) 8 Hours Average (***) Annual Average
ND=Not Detected, DL= Detection Limit,

Test Method as Follows:-
Particulate Matter, $PM_{2.5}$ - IS-5182(P-24)-2019, Particulate Matter, PM_{10} - IS-5182(P-23)-2006, Sulphur Dioxide (as SO_2)- IS-5182 (P-2)-2001, Nitrogen Dioxide (as NO_2) - IS-5182(P-6)-2006, Carbon Monoxide (as CO) - IS-5182(P-10)-1999, Ozone (as O_3) - IS-5182(P-9)-1974, Ammonia (as NH_3) - IS-5182(P-25)-2018, Lead (as Pb) - IS-5182(P-22)-2004, Nickel (as Ni) - AAL/SOP/008, Arsenic (as As) - IS-5182(P-22)-2004, Benzene (as C_6H_6) - IS-5182(P-11)-2006, Banzo a-pyrene (BaP) - IS-5182(P-12)-2004

Detection Limit as Follows:-
Particulate Matter, $PM_{2.5}$ - 5 µg/m³, Particulate Matter, PM_{10} -10 µg/m³, Sulphur Dioxide (as SO_2)- 5 µg/m³, Nitrogen Dioxide (as NO_2) - 4 µg/m³, Carbon Monoxide (as CO)- 0.5 mg/m³, Ozone (as O_3) - 20 µg/m³, Ammonia (as NH_3) - 20 µg/m³, Lead (as Pb) - 0.1 µg/m³, Nickel (as Ni)- 1.0 ng/m³, Arsenic (as As) - 1.0 ng/m³, Benzene (as C_6H_6) - 1.0 µg/m³, Banzo a-pyrene (BaP) - 0.5 ng/m³

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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Website : www.aalkundli.com

TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL ENV-20240330007
		Date of Receiving:	30/03/2024
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Starting:**	30/03/2024
Sampling Method:	IS:5182 (Part-14)-2000	**Date of Completion:**	04/04/2024
Work order Item:	Panipat Naphtha Cracker (Table-V)	**Date of Reporting:**	04/04/2024
Sampling Location:	**Roof of Quality Control Lab**	**Sampling Duration:**	24:00 Hrs
		Sampling Done By:	AAL

TEST RESULT

Test Parameters→ Date of Sampling↓	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	As (ng/m^3)	Ni (ng/m^3)	B(a)P (ng/m^3)
04/03/2024	52.7	90.8	12.4	23.9	0.95	29.2	22.6	ND	1.12	ND	ND	ND
07/03/2024	50.2	89.4	9.6	21.9	0.86	30.1	23.4	ND	1.06	ND	ND	ND
11/03/2024	49.4	88.3	11.5	23.2	1.12	28.4	25.3	ND	1.16	ND	ND	ND
14/03/2024	51.1	91.2	9.5	24.7	1.05	30.8	22.2	ND	1.20	ND	ND	ND
18/03/2024	46.4	86.5	10.3	22.6	1.10	31.9	23.6	ND	1.20	ND	ND	ND
21/03/2024	48.2	92.7	13.5	24.3	1.22	27.6	22.9	ND	1.23	ND	ND	ND
26/03/2024	50.7	90.1	12.2	21.3	1.19	22.9	23.5	ND	1.20	ND	ND	ND
29/03/2024	47.8	91.6	12.8	22.4	1.08	24.8	23.3	ND	1.15	ND	ND	ND
Maximum	**52.7**	**92.7**	**13.5**	**24.7**	**1.22**	**31.9**	**25.3**	-	**1.23**	-	-	-
Minimum	**46.4**	**86.5**	**9.5**	**21.3**	**0.86**	**22.9**	**22.2**	-	**1.06**	-	-	-
Average	**49.6**	**90.1**	**11.5**	**23.0**	**1.07**	**28.2**	**23.4**	-	**1.17**	-	-	-
NAAQ Standard	60*	100*	80*	80*	2**	100**	400*	1*	5***	6***	20***	1***

****End of Report****

Remarks: - (*) 24 Hour Average (**) 8 Hours Average (***) Annual Average
ND=Not Detected, DL= Detection Limit,

Test Method as Follows:-
Particulate Matter, $PM_{2.5}$. IS-5182(P-24)-2019, Particulate Matter, PM_{10}. IS-5182(P-23)-2006, Sulphur Dioxide (as SO_2)- IS-5182 (P-2)-2001, Nitrogen Dioxide (as NO_2) - IS-5182(P-6)-2006, Carbon Monoxide (as CO) - IS-5182(P-10)-1999, Ozone (as O_3) - IS-5182(P-9)-1974, Ammonia (as NH_3) - IS-5182(P-25)-2018, Lead (as Pb) - IS-5182(P-22)-2004, Nickel (as Ni) - AAL/SOP/008, Arsenic (as As) - IS-5182(P-22)-2004, Benzene (as C_6H_6) - IS-5182(P-11)-2006, Banzo a-pyrene (BaP) - IS-5182(P-12)-2004

Detection Limit as Follows:-
Particulate Matter, $PM_{2.5}$ - 5 $\mu g/m^3$, Particulate Matter, PM_{10} -10 $\mu g/m^3$, Sulphur Dioxide (as SO_2)- 5 $\mu g/m^3$, Nitrogen Dioxide (as NO_2) - 4 $\mu g/m^3$, Carbon Monoxide (as CO)- 0.5 mg/m^3, Ozone (as O_3) - 20 $\mu g/m^3$, Ammonia (as NH_3) - 20 $\mu g/m^3$, Lead (as Pb) - 0.1 $\mu g/m^3$, Nickel (as Ni)- 1.0 ng/m^3, Arsenic (as As) - 1.0 ng/m^3, Benzene (as C_6H_6) - 1.0 $\mu g/m^3$, Banzo a-pyrene (BaP) - 0.5 ng/m^3

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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TEST REPORT

Report No. AAL ENV-20240228002

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Date of Receiving:**	28/02/2024
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Starting:**	28/02/2024
Sampling Method:	IS:5182 (Part-14)-2000	**Date of Completion:**	04/03/2024
Work order Item:	Panipat Naphtha Cracker (Table-V)	**Date of Reporting:**	04/03/2024
Sampling Location:	**Roof of Quality Control Lab**	**Sampling Duration:**	24:00 Hrs
		Sampling Done By:	AAL

TEST RESULT

Test Parameters→ Date of Sampling↓	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	CO (mg/m³)	O_3 (µg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	C_6H_6 (µg/m³)	As (ng/m³)	Ni (ng/m³)	B(a)P (ng/m³)
05/02/2024	62.4	110.3	11.2	24.1	0.82	27.4	23.8	ND	1.18	ND	ND	ND
08/02/2024	58.1	93.5	10.3	23.4	0.87	26.2	21.9	ND	1.08	ND	ND	ND
12/02/2024	54.6	90.5	9.8	25.7	1.05	25.6	23.9	ND	1.12	ND	ND	ND
15/02/2024	49.3	86.4	9.3	23.8	1.09	28.5	23.4	ND	1.10	ND	ND	ND
19/02/2024	52.8	89.1	8.9	24.2	1.15	27.6	20.5	ND	1.15	ND	ND	ND
22/02/2024	55.2	91.4	12.6	25.3	1.18	29.5	21.3	ND	1.20	ND	ND	ND
26/02/2024	51.6	87.8	11.5	23.4	1.21	25.1	22.7	ND	1.22	ND	ND	ND
Maximum	**62.4**	**110.3**	**12.6**	**25.7**	**1.21**	**29.5**	**23.9**	-	**1.22**	-	-	-
Minimum	**49.3**	**86.4**	**8.9**	**23.4**	**0.82**	**25.1**	**20.5**	-	**1.08**	-	-	-
Average	**54.9**	**92.7**	**10.5**	**24.3**	**1.05**	**27.1**	**22.5**	-	**1.15**	-	-	-
NAAQ Standard	60*	100*	80*	80*	2**	100**	400*	1*	5***	6***	20***	1***

****End of Report****

Remarks: - (*) 24 Hour Average (**) 8 Hours Average (***) Annual Average
ND=Not Detected, DL= Detection Limit,

Test Method as Follows:-
Particulate Matter, $PM_{2.5}$ - IS-5182(P-24)-2019, Particulate Matter, PM_{10} - IS-5182(P-23)-2006, Sulphur Dioxide (as SO_2)- IS-5182 (P-2)-2001, Nitrogen Dioxide (as NO_2) - IS-5182(P-6)-2006, Carbon Monoxide (as CO) - IS-5182(P-10)-1999, Ozone (as O_3) - IS-5182(P-9)-1974, Ammonia (as NH_3) - IS-5182(P-25)-2018, Lead (as Pb) - IS-5182(P-22)-2004, Nickel (as Ni) - AAL/SOP/008, Arsenic (as As) - IS-5182(P-22)-2004, Benzene (as C_6H_6) - IS-5182(P-11)-2006, Banzo a-pyrene (BaP) - IS-5182(P-12)-2004

Detection Limit as Follows:-
Particulate Matter, $PM_{2.5}$ - 5 µg/m³, Particulate Matter, PM_{10} -10 µg/m³, Sulphur Dioxide (as SO_2)- 5 µg/m³, Nitrogen Dioxide (as NO_2) - 4 µg/m³, Carbon Monoxide (as CO)- 0.5 mg/m³, Ozone (as O_3) - 20 µg/m³, Ammonia (as NH_3) - 20 µg/m³, Lead (as Pb) - 0.1 µg/m³, Nickel (as Ni)- 1.0 ng/m³, Arsenic (as As) - 1.0 ng/m³, Benzene (as C_6H_6) - 1.0 µg/m³, Banzo a-pyrene (BaP) - 0.5 ng/m³

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

Note: 1. The Result Indicated above refer to the tested sample and listed test parameters only, endorsement of products is neither inferred not implied.
2. Total liability of our laboratory is limited to the invoice amount.
3. This report shall not be reproduced wholly or in part without written consent of the laboratory.
4. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory.
5. The non-perishable sample received shall be destroyed after one month and perishable sample shall be destroyed after one week from the

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TEST CERTIFICATE

Report No. AAL ENV-20240131019

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Date of Receiving:**	31/01/2024
		Date of Starting:	31/01/2024
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Completion:**	05/02/2024
Sampling Method:	IS:5182 (Part-14)-2000	**Date of Reporting:**	05/02/2024
Work order Item:	Panipat Naphtha Cracker (Table-V)	**Sampling Duration:**	24:00 Hrs
Sampling Location:	**Roof of Quality Control Lab**	**Sampling Done By:**	AAL

TEST RESULT

Test Parameters→ Date of Sampling↓	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	CO (mg/m³)	O_3 (µg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	C_6H_6 (µg/m³)	As (ng/m³)	Ni (ng/m³)	B(a)P (ng/m³)
01/01/2024	89.5	178.9	12.7	20.4	0.85	29.6	22.7	ND	1.08	ND	ND	ND
04/01/2024	90.2	183.7	13.5	22.3	1.00	35.4	21.6	ND	1.12	ND	ND	ND
08/01/2024	78.8	192.5	11.4	21.8	0.85	28.7	24.9	ND	1.05	ND	ND	ND
11/01/2024	82.7	196.3	12.1	24.2	1.05	36.3	23.8	ND	1.15	ND	ND	ND
15/01/2024	58.8	129.5	13.7	23.7	0.98	33.9	20.9	ND	1.06	ND	ND	ND
18/01/2024	62.2	120.2	10.8	20.9	1.02	26.9	21.7	ND	1.10	ND	ND	ND
22/01/2024	87.6	145.9	9.9	18.3	0.78	25.4	22.1	ND	1.15	ND	ND	ND
29/01/2024	82.4	135.9	9.6	24.7	1.08	28.3	21.6	ND	1.10	ND	ND	ND
Maximum	**90.2**	**196.3**	**13.7**	**24.7**	**1.08**	**36.3**	**24.9**	-	**1.15**	-	-	-
Minimum	**58.8**	**120.2**	**9.6**	**18.3**	**0.78**	**25.4**	**20.9**	-	**1.05**	-	-	-
Average	**79.0**	**160.4**	**11.7**	**22.0**	**0.95**	**30.6**	**22.4**	-	**1.10**	-	-	-
NAAQ Standard	60*	100*	80*	80*	2**	100**	400*	1*	5***	6***	20***	1***

End of Report

Remarks: - (*) 24 Hour Average (**) 8 Hours Average (***) Annual Average
ND=Not Detected, DL= Detection Limit,

Test Method as Follows:-
Particulate Matter, $PM_{2.5}$ - IS-5182(P-24)-2019, Particulate Matter, PM_{10} - IS-5182(P-23)-2006, Sulphur Dioxide (as SO_2)- IS-5182 (P-2)-2001, Nitrogen Dioxide (as NO_2) - IS-5182(P-6)-2006, Carbon Monoxide (as CO) - IS-5182(P-10)-1999, Ozone (as O_3) - IS-5182(P-9)-1974, Ammonia (as NH_3) - IS-5182(P-25)-2018, Lead (as Pb) - IS-5182(P-22)-2004, Nickel (as Ni) - AAL/SOP/008, Arsenic (as As) - IS-5182(P-22)-2004, Benzene (as C_6H_6) - IS-5182(P-11)-2006, Banzo a-pyrene (BaP) - IS-5182(P-12)-2004

Detection Limit as Follows:-
Particulate Matter, $PM_{2.5}$ - 5 µg/m³, Particulate Matter, PM_{10} -10 µg/m³, Sulphur Dioxide (as SO_2)- 5 µg/m³, Nitrogen Dioxide (as NO_2) - 4 µg/m³, Carbon Monoxide (as CO)- 0.5 mg/m³, Ozone (as O_3) - 20 µg/m³, Ammonia (as NH_3) - 20 µg/m³, Lead (as Pb) - 0.1 µg/m³, Nickel (as Ni)- 1.0 ng/m³, Arsenic (as As) - 1.0 ng/m³, Benzene (as C_6H_6) - 1.0 µg/m³, Banzo a-pyrene (BaP) - 0.5 ng/m³

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

Note: 1. The Result Indicated above refer to the tested sample and listed test parameters only, endorsement of products is neither inferred not implied.
2. Total liability of our laboratory is limited to the invoice amount.
3. This report shall not be reproduced wholly or in part without written consent of the laboratory.
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5. The non-perishable sample received shall be destroyed after one month and perishable sample shall be destroyed after one week from the date of issue of report unless specified.

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TEST CERTIFICATE

Report No. AAL ENV-20231229002

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Date of Receiving:**	29/12/2023
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Starting:**	29/12/2023
Sampling Method:	IS:5182 (Part-14)-2000	**Date of Completion:**	03/01/2024
Work order Item:	Panipat Naphtha Cracker (Table-V)	**Date of Reporting:**	03/01/2024
Sampling Location:	**Roof of Quality Control Lab**	**Sampling Duration:**	24:00 Hrs
		Sampling Done By:	AAL

TEST RESULT

Test Parameters→ Date of Sampling↓	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	As (ng/m^3)	Ni (ng/m^3)	B(a)P (ng/m^3)
04/12/2023	58.9	168.5	9.8	20.7	0.95	29.1	25.9	ND	1.20	ND	ND	ND
07/12/2023	67.4	165.1	10.2	18.5	1.15	26.3	21.4	ND	1.00	ND	ND	ND
11/12/2023	62.3	171.7	10.1	19.2	1.05	28.4	26.8	ND	1.20	ND	ND	ND
14/12/2023	82.1	175.3	13.4	21.7	1.20	27.5	22.5	ND	1.15	ND	ND	ND
18/12/2023	55.8	142.2	12.7	22.4	1.00	25.9	21.9	ND	1.20	ND	ND	ND
21/12/2023	72.5	182.3	10.4	20.3	0.95	28.5	27.8	ND	1.00	ND	ND	ND
28/12/2023	83.6	205.3	10.3	22.3	1.15	26.9	23.5	ND	1.15	ND	ND	ND
Maximum	**83.6**	**205.3**	**13.4**	**22.4**	**1.20**	**29.1**	**27.8**	-	**1.20**	-	-	-
Minimum	**55.8**	**142.2**	**9.8**	**18.5**	**0.95**	**25.9**	**21.4**	-	**1.00**	-	-	-
Average	**68.9**	**172.9**	**11.0**	**20.7**	**1.06**	**27.5**	**24.3**	-	**1.13**	-	-	-
NAAQ Standard	60*	100*	80*	80*	2**	100**	400*	1*	5***	6***	20***	1***

****End of Report****

Remarks: - (*) 24 Hour Average (**) 8 Hours Average (***) Annual Average
ND=Not Detected, DL= Detection Limit.

Test Method as Follows:-
Particulate Matter, $PM_{2.5}$ IS-5182(P-24)-2019, Particulate Matter, PM_{10} - IS-5182(P-23)-2006, Sulphur Dioxide (as SO_2)- IS-5182 (P-2)-2001, Nitrogen Dioxide (as NO_2) - IS-5182(P-6)-2006, Carbon Monoxide (as CO) - IS-5182(P-10)-1999, Ozone (as O_3) - IS-5182(P-9)-1974, Ammonia (as NH_3) - IS-5182(P-25)-2018, Lead (as Pb) - IS-5182(P-22)-2004, Nickel (as Ni) - AAL/SOP/008, Arsenic (as As) - IS-5182(P-22)-2004, Benzene (as C_6H_6) - IS-5182(P-11)-2006, Banzo a-pyrene (BaP) - IS-5182(P-12)-2004

Detection Limit as Follows:-
Particulate Matter, $PM_{2.5}$ - 5 $\mu g/m^3$, Particulate Matter, PM_{10} -10 $\mu g/m^3$, Sulphur Dioxide (as SO_2)- 5 $\mu g/m^3$, Nitrogen Dioxide (as NO_2) - 4 $\mu g/m^3$, Carbon Monoxide (as CO)- 0.5 mg/m^3, Ozone (as O_3) - 20 $\mu g/m^3$, Ammonia (as NH_3) - 20 $\mu g/m^3$, Lead (as Pb) - 0.1 $\mu g/m^3$, Nickel (as Ni)- 1.0 ng/m^3, Arsenic (as As) - 1.0 ng/m^3, Benzene (as C_6H_6) - 1.0 $\mu g/m^3$, Banzo a-pyrene (BaP) - 0.5 ng/m^3

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

Note: 1. The Result Indicated above refer to the tested sample and listed test parameters only, endorsement of products is neither inferred not implied.
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TEST REPORT

Issued To: **M/s Indian Oil Corporation Limited**
(Refineries Division)
Panipat Naphtha Cracker,
Panipat (Haryana)

Sample Description: **Stack Emission**

Sampling Method: IS:11255

Work order Item: Panipat Naphtha Cracker (Table-W)

Report No. AAL ENV-20240430012

Date of Receiving: 30/04/2024

Date of Starting: 30/04/2024

Date of Completion: 06/05/2024

Date of Reporting: 06/05/2024

Sampling Done By: AAL

STACK DETAILS

S/N	Date of Sampling	Detail of Stack	Ambient Temp. (°C)	Stack Temp. (°C)	Stack Dia. (m)	Stack Height (m)	Flue Gas Velocity (m/sec)
8	26/04/2024	CPP HRSG2	37	149	3.3	70.0	10.53
9	26/04/2024	CPP HRSG3	37	157	3.3	70.0	10.86
10	26/04/2024	CPP HRSG4	37	184	3.3	70.0	10.88
11	29/04/2024	UB Boiler-1	37	182	3.3	100.0	10.93
12	29/04/2024	SWING VAP 01/DTB	37	185	1.8	60.0	10.72
13	29/04/2024	SWING VAP 02/DTA	37	180	1.8	60.0	10.67
14	27/04/2024	MEG -WHB	37	189	0.85	35.0	10.69

TEST RESULT

S/N	Date of Sampling	Detail of Stack↓ Unit→	Particulate Matter (PM)		Sulphur Dioxide (SO_2)			Oxide of Nitrogen (NOx)			Carbon Monoxide (as CO)			Nickel & Vanadium (as Ni & V)		
			mg/Nm³	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr
8	26/04/2024	CPP HRSG2	9.2	2.05	9.5	3.32	2.12	102.4	49.88	22.83	4.2	3.36	0.94	ND	-	-
9	26/04/2024	CPP HRSG3	7.8	1.76	8.9	3.11	2.01	96.4	46.96	21.75	5.4	4.32	1.22	ND	-	-
10	26/04/2024	CPP HRSG4	8.1	1.72	8.5	2.97	1.81	95.7	46.61	20.35	5.8	4.64	1.23	ND	-	-
11	29/04/2024	UB Boiler-1	8.3	1.78	8.9	3.11	1.91	120.6	58.74	25.89	6.8	5.44	1.46	ND	-	-
12	29/04/2024	SWING VAP	2.1	0.14	10.1	3.53	0.63	113.4	55.24	3.06	11.8	9.44	0.73	ND	-	-
13	29/04/2024	SWING VAP	1.9	0.12	10.9	3.81	0.68	120.8	58.84	7.56	10.4	8.32	0.65	ND	-	-
14	27/04/2024	MEG -WHB	7.9	0.11	19.9	6.82	0.27	129.4	63.03	1.77	14.5	11.60	0.20	ND	-	-
Permissible limits (mg/Nm³)		**Gas**	10		50			350			150			-		
		liquid	100		1700			450			200			5		
		FCCU	-		-			-			400			-		

ND=Not Detected

****End of Report****

Remarks:
Test Method: - Particulate Matter (as PM) IS 11255(P-1)-1985, Sulphur Dioxide (as SO_2) IS 11255(P-2)-1985, Oxide of Nitrogen (as NO_x) IS 11255(P-7)-2005, Carbon Monoxide (as CO) IS 13270-1992, Nickel & Vanadium USEPA Method 29 by AAS

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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Website : www.aalkundli.com

TEST REPORT

Issued To: **M/s Indian Oil Corporation Limited**
(Refineries Division)
Panipat Naphtha Cracker,
Panipat (Haryana)

Report No. AAL ENV-20240430012

Sample Description: **Stack Emission**

Sampling Method: IS:11255

Work order Item: Panipat Naphtha Cracker (Table-W)

Date of Receiving: 30/04/2024
Date of Starting: 30/04/2024
Date of Completion: 06/05/2024
Date of Reporting: 06/05/2024
Sampling Done By: AAL

STACK DETAILS

S/N	Date of Sampling	Detail of Stack	Ambient Temp. (°C)	Stack Temp. (°C)	Stack Dia. (m)	Stack Height (m)	Flue Gas Velocity (m/sec)
1	20/04/2024	NCU H200	36	140	3.1	58.0	10.26
2	20/04/2024	NCU H300	36	152	3.1	58.0	10.41
3	26/04/2024	NCU H400	37	146	3.1	58.0	10.34
4	20/04/2024	NCU H500	36	155	3.1	58.0	10.45
5	27/04/2024	NCU H600	37	157	3.1	58.0	10.47
6	27/04/2024	NCU H700	37	152	3.1	58.0	10.57
7	27/04/2024	NCU H110	37	146	3.1	58.0	10.49

TEST RESULT

S/N	Date of Sampling	Detail of Stack↓ Unit→	Particulate Matter (PM)		Sulphur Dioxide (SO_2)			Oxide of Nitrogen (NOx)			Carbon Monoxide (as CO)			Nickel & Vanadium (as Ni & V)		
			mg/Nm³	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr
1	20/04/2024	NCU H200	9.2	1.80	7.8	2.73	1.53	84.3	41.06	16.51	7.1	5.68	1.39	ND	-	-
2	20/04/2024	NCU H300	7.4	1.43	7.5	2.62	1.45	89.2	43.45	17.23	7.6	6.08	1.47	ND	-	-
3	26/04/2024	NCU H400	7.9	1.54	8.2	2.87	1.59	95.8	46.66	18.63	7.2	5.76	1.40	ND	-	-
4	20/04/2024	NCU H500	9.1	1.75	8.6	3.01	1.65	93.7	45.64	18.03	8.4	6.72	1.62	ND	-	-
5	27/04/2024	NCU H600	8.9	1.71	9.7	3.39	1.86	101.4	49.39	19.47	8.8	7.04	1.69	ND	-	-
6	27/04/2024	NCU H700	9.4	1.84	8.6	3.01	1.69	104.5	50.90	20.48	8.1	6.48	1.59	ND	-	-
7	27/04/2024	NCU H110	8.7	1.72	7.2	2.52	1.42	81.5	39.70	16.09	7.8	6.24	1.54	ND	-	-
Permissible limits (mg/Nm³)		**Gas**	10		50			350			150			-		
		liquid	100		1700			450			200			5		
		FCCU	-		-			-			400			-		

ND=Not Detected

Remarks:
Test Method: - Particulate Matter (as PM) IS 11255(P-1)-1985, Sulphur Dioxide (as SO_2) IS 11255(P-2)-1985, Oxide of Nitrogen (as NO_x) IS 11255(P-7)-2005, Carbon Monoxide (as CO) IS 13270-1992, Nickel & Vanadium USEPA Method 29 by AAS

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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Website : www.aalkundli.com

TEST REPORT

Issued To: M/s Indian Oil Corporation Limited
(Refineries Division)
Panipat Naphtha Cracker,
Panipat (Haryana)

Sample Description: Stack Emission

Sampling Method: IS:11255

Work order Item: Panipat Naphtha Cracker (Table-W)

Report No. AAL ENV-20240224004

Date of Receiving: 24/02/2024

Date of Starting: 24/02/2024

Date of Completion: 29/02/2024

Date of Reporting: 29/02/2024

Sampling Done By: AAL

STACK DETAILS

S/N	Date of Sampling	Detail of Stack	Ambient Temp. (°C)	Stack Temp. (°C)	Stack Dia. (m)	Stack Height (m)	Flue Gas Velocity (m/sec)
1	19/02/2024	NCU H100	26	139	3.1	58.0	10.17
2	19/02/2024	NCU H200	26	134	3.1	58.0	10.27
3	19/02/2024	NCU H300	26	143	3.1	58.0	10.76
4	19/02/2024	NCU H400	26	141	3.1	58.0	10.43
5	20/02/2024	NCU H500	25	148	3.1	58.0	10.52
6	20/02/2024	NCU H700	25	142	3.1	58.0	10.39
7	21/02/2024	CPP HRSG1	26	134	3.3	70.0	10.11

TEST RESULT

S/N	Date of Sampling	Detail of Stack↓ Unit→	Particulate Matter (PM)		Sulphur Dioxide (SO_2)			Oxide of Nitrogen (NOx)			Carbon Monoxide (as CO)			Nickel & Vanadium (as Ni & V)		
			mg/Nm³	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr
1	19/02/2024	NCU H100	4.6	0.90	7.8	2.73	1.52	81.5	39.70	15.86	8.9	7.12	1.73	ND	-	-
2	19/02/2024	NCU H200	4.5	0.88	7.8	2.73	1.55	85.5	41.65	17.00	9.1	7.28	1.81	ND	-	-
3	19/02/2024	NCU H300	4.1	0.79	8.3	2.90	1.69	103.5	50.41	21.10	8.4	6.72	1.71	ND	-	-
4	19/02/2024	NCU H400	4.6	0.90	9.2	3.22	1.83	98.4	47.93	19.54	8.6	6.88	1.71	ND	-	-
5	20/02/2024	NCU H500	4.8	0.95	7.9	2.76	1.56	90.5	44.08	17.82	8.1	6.48	1.59	ND	-	-
6	20/02/2024	NCU H700	4.2	0.83	8.8	3.08	1.75	96.7	47.10	19.27	8.7	6.96	1.73	ND	-	-
7	21/02/2024	CPP HRSG1	8.9	1.97	8.3	2.90	1.84	82.5	40.19	18.30	7.8	6.24	1.73	ND	-	-
Permissible limits (mg/Nm³)		Gas	10		50			350			150			-		
		liquid	100		1700			450			200			5		
		FCCU	-		-			-			400			-		

ND-Not Detected

Remarks:
Test Method: - Particulate Matter (as PM) IS 11255(P-1)-1985, Sulphur Dioxide (as SO_2) IS 11255(P-2)-1985, Oxide of Nitrogen (as NO_x) IS 11255(P-7)-2005, Carbon Monoxide (as CO) IS 13270-1992, Nickel & Vanadium USEPA Method 29 by AAS

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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Website : www.aalkundli.com

TEST REPORT

Issued To: **M/s Indian Oil Corporation Limited**
(Refineries Division)
Panipat Naphtha Cracker,
Panipat (Haryana)

Sample Description: Stack Emission

Sampling Method: IS:11255

Work order Item: Panipat Naphtha Cracker (Table-W)

Report No. AAL ENV-20240224004

Date of Receiving: 24/02/2024

Date of Starting: 24/02/2024

Date of Completion: 29/02/2024

Date of Reporting: 29/02/2024

Sampling Done By: AAL

STACK DETAILS

S/N	Date of Sampling	Detail of Stack	Ambient Temp. (°C)	Stack Temp. (°C)	Stack Dia. (m)	Stack Height (m)	Flue Gas Velocity (m/sec)
8	21/02/2024	CPP HRSG2	26	139	3.3	70.0	10.41
9	21/02/2024	CPP HRSG3	26	148	3.3	70.0	10.75
10	21/02/2024	CPP HRSG4	26	172	3.3	70.0	10.81
11	22/02/2024	UB Boiler-1	25	173	3.3	100.0	10.58
12	22/02/2024	MEG -WHB	25	174	0.85	35.0	10.60
13	23/02/2024	SWING VAP 01/DTB	26	168	1.8	60.0	11.31
14	23/02/2024	SWING VAP 02/DTA	26	171	1.8	60.0	11.04

TEST RESULT

S/N	Date of Sampling	Detail of Stack↓ Unit→	Particulate Matter (PM)		Sulphur Dioxide (SO_2)			Oxide of Nitrogen (NOx)			Carbon Monoxide (as CO)			Nickel & Vanadium (as Ni & V)		
			mg/Nm³	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr
8	21/02/2024	CPP HRSG2	8.6	1.94	8.7	3.04	1.96	92.7	45.15	20.91	4.9	3.92	1.11	ND	-	-
9	21/02/2024	CPP HRSG3	8.6	1.94	9.2	3.22	2.10	101.3	49.34	23.10	5.3	4.24	1.21	ND	-	-
10	21/02/2024	CPP HRSG4	8.9	1.93	8.5	2.97	1.84	112.4	54.85	24.39	7.8	6.24	1.69	ND	-	-
11	22/02/2024	UB Boiler-1	7.6	1.61	8.3	2.90	1.76	112.5	54.80	23.85	7.4	5.92	1.57	ND	-	-
12	22/02/2024	MEG -WHB	8.5	0.12	17.2	6.02	0.25	115.4	56.21	1.69	13.3	10.64	0.20	ND	-	-
13	23/02/2024	SWING VAP 01/DTB	1.8	0.12	10.5	3.67	0.72	115.3	56.16	7.85	10.1	8.08	0.69	ND	-	-
14	23/02/2024	SWING VAP 02/DTA	1.6	0.11	9.3	3.25	0.61	110.2	53.68	7.28	9.5	7.60	0.63	ND	-	-
Permissible limits (mg/Nm³)		Gas	10		50			350			150			-		
		liquid	100		1700			450			200			5		
		FCCU	-		-			-			400			-		

ND=Not Detected

****End of Report****

Remarks:
Test Method: - Particulate Matter (as PM) IS 11255(P-1)-1985, Sulphur Dioxide (as SO_2) IS 11255(P-2)-1985, Oxide of Nitrogen (as NO_x) IS 11255(P-7)-2005, Carbon Monoxide (as CO) IS 13270-1992, Nickel & Vanadium USEPA Method 29 by AAS

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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Website : www.aalkundli.com

TEST CERTIFICATE

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL ENV-20231220003
		Date of Receiving:	20/12/2023
Sample Description:	Stack Emission	**Date of Starting:**	20/12/2023
Sampling Method:	IS:11255	**Date of Completion:**	25/12/2023
Work order Item:	Panipat Naphtha Cracker (Table-W)	**Date of Reporting:**	25/12/2023
		Sampling Done By:	AAL

STACK DETAILS

S/N	Date of Sampling	Detail of Stack	Ambient Temp. (°C)	Stack Temp. (°C)	Stack Dia. (m)	Stack Height (m)	Flue Gas Velocity (m/sec)
1	13/12/2023	CPP HRSG1	25	132	3.3	70.0	10.24
2	13/12/2023	CPP HRSG2	25	140	3.3	70.0	10.65
3	13/12/2023	CPP HRSG3	25	152	3.3	70.0	10.95
4	14/12/2023	CPP HRSG4	25	175	3.3	70.0	10.61
5	14/12/2023	CPP HRSG5	25	137	3.3	70.0	10.61
6	15/12/2023	UB Boiler-1	24	171	3.3	100.0	10.64
7	16/12/2023	SWING VAP 01/DTB	24	172	1.8	60.0	11.05
8	16/12/2023	SWING VAP 02/DTA	24	169	1.8	60.0	10.78

TEST RESULT

S/N	Date of Sampling	Detail of Stack↓ Unit→	Particulate Matter (PM)		Sulphur Dioxide (SO_2)			Oxide of Nitrogen (NOx)			Carbon Monoxide (as CO)			Nickel & Vanadium (as Ni & V)		
			mg/Nm³	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr
1	13/12/2023	CPP HRSG1	8.2	1.82	8.7	3.04	1.96	90.3	43.98	20.39	7.2	5.76	1.63	ND	-	-
2	13/12/2023	CPP HRSG2	8.1	1.86	7.8	2.73	1.80	101.3	49.34	23.32	4.2	3.36	0.97	ND	-	-
3	13/12/2023	CPP HRSG3	7.9	1.82	8.5	2.97	1.96	105.9	51.58	24.37	4.6	3.68	1.06	ND	-	-
4	14/12/2023	CPP HRSG4	8.5	1.80	9.1	3.18	1.92	116.3	56.65	24.60	6.9	5.52	1.46	ND	-	-
5	14/12/2023	CPP HRSG5	9.2	2.13	8.3	2.90	1.92	102.3	49.83	23.64	5.3	4.24	1.22	ND	-	-
6	15/12/2023	UB Boiler-1	8.2	1.76	9.3	3.25	1.99	121.8	59.33	26.07	6.8	5.44	1.46	ND	-	-
7	16/12/2023	SWING VAP 01/DTB	0	0.00	11.2	3.92	0.74	118.5	57.72	7.82	12.4	9.92	0.82	ND	-	
8	16/12/2023	SWING VAP 02/DTA	0	0.00	10.8	3.78	0.70	121.5	59.18	7.87	12.1	9.68	0.78	ND	-	
Permissible limits (mg/Nm³)		Gas	10		50			350			150			-		
		liquid	100		1700			450			200			5		
		FCCU	-		-			-			400			-		

ND=Not Detected

Remarks:
Test Method: - Particulate Matter (as PM) IS 11255(P-1)-1985, Sulphur Dioxide (as SO_2) IS 11255(P-2)-1985, Oxide of Nitrogen (as NO_x) IS 11255(P-7)-2005, Carbon Monoxide (as CO) IS 13270-1992, Nickel & Vanadium USEPA Method 29 by AAS

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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TEST CERTIFICATE

Issued To:	M/s Indian Oil Corporation Limited (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL ENV-20231220003
		Date of Receiving:	20/12/2023
		Date of Starting:	20/12/2023
Sample Description:	Stack Emission	**Date of Completion:**	25/12/2023
Sampling Method:	IS:11255	**Date of Reporting:**	25/12/2023
Work order Item:	Panipat Naphtha Cracker (Table-W)	**Sampling Done By:**	AAL

STACK DETAILS

S/N	Date of Sampling	Detail of Stack	Ambient Temp. (°C)	Stack Temp. (°C)	Stack Dia. (m)	Stack Height (m)	Flue Gas Velocity (m/sec)
9	16/12/2023	MEG -WHB	24	179	0.85	35.0	11.14
10	18/12/2023	NCU H100	24	135	3.1	58.0	10.12
11	18/12/2023	NCU H200	24	129	3.1	58.0	10.28
12	18/12/2023	NCU H300	24	141	3.1	58.0	10.43
13	18/12/2023	NCU H400	24	137	3.1	58.0	10.38
14	19/12/2023	NCU H500	24	145	3.1	58.0	10.48
15	19/12/2023	NCU H600	24	147	3.1	58.0	10.74
16	19/12/2023	NCU H700	24	140	3.1	58.0	10.65

TEST RESULT

S/N	Date of Sampling	Detail of Stack↓ Unit→	Particulate Matter (PM)		Sulphur Dioxide (SO_2)			Oxide of Nitrogen (NOx)			Carbon Monoxide (as CO)			Nickel & Vanadium (as Ni & V)		
			mg/Nm³	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr	mg/Nm³	ppm	kg/hr
9	16/12/2023	MEG -WHB	7.8	0.11	21.2	7.42	0.31	127.3	62.01	1.86	12.5	10.00	0.18	ND	-	-
10	18/12/2023	NCU H100	8.4	1.64	8.9	3.11	1.74	89.3	43.50	17.46	7.3	5.84	1.43	ND	-	-
11	18/12/2023	NCU H200	7.6	1.53	7.2	2.52	1.45	95.3	46.42	19.20	8.4	6.72	1.69	ND	-	-
12	18/12/2023	NCU H300	7.2	1.42	7.9	2.76	1.57	100.1	48.76	19.88	7.6	6.08	1.51	ND	-	-
13	18/12/2023	NCU H400	8.2	1.64	8.6	3.01	1.72	93.7	45.64	18.70	7.8	6.24	1.56	ND	-	-
14	19/12/2023	NCU H500	9.1	1.80	8.6	3.01	1.70	98.3	47.88	19.43	8.9	7.12	1.76	ND	-	-
15	19/12/2023	NCU H600	8.5	1.71	8.9	3.11	1.79	103.7	50.51	20.89	8.6	6.88	1.73	ND	-	-
16	19/12/2023	NCU H700	8.1	1.65	8.3	2.90	1.69	103.2	50.27	20.96	7.9	6.32	1.60	ND	-	-
Permissible limits (mg/Nm³)		Gas	10		50			350			150			-		
		liquid	100		1700			450			200			5		
		FCCU	-		-			-			400			-		

ND=Not Detected

****End of Report****

Remarks:
Test Method: - Particulate Matter (as PM) IS 11255(P-1)-1985, Sulphur Dioxide (as SO_2) IS 11255(P-2)-1985, Oxide of Nitrogen (as NO_x) IS 11255(P-7)-2005, Carbon Monoxide (as CO) IS 13270-1992, Nickel & Vanadium USEPA Method 29 by AAS

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

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TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL WQT-20240520039
		Date of Receiving:	20/05/2024
		Date of Starting:	20/05/2024
		Date of Completion:	27/05/2024
Sample Description:	**Effluent Water Sample**	**Date of Reporting:**	27/05/2024
Work order Item:	Panipat Naphtha Cracker (Table-Q)	**Sample Quantity:**	2 Litre
Sample Collection Date:	18/05/2024	**Sample Packing Condition:**	Plastic Can
Sample ID:	**ETP Outlet Water**	**Sample Collected By:**	AAL

TEST RESULT

S. No.	Test parameters	Unit	Results	Permissible Limits (MINAS)	Testing Method
1	pH Value	-	8.12	6.5 – 8.5	IS 3025(P-11)-2022
2	Total Suspended Solids	mg/l	18.0	100 Max.	IS 3025 (P-17)-2022
3	Biochemical Oxygen Demand (BOD - 3 days at 27°C)	mg/l	17.0	30 Max.	IS 3025(P-44)-2023
4	Chemical Oxygen Demand (COD)	mg/l	86.0	250 Max.	IS 3025(P-58)-2023
5	Cyanide (as CN)	mg/l	$ND_{(DL-0.05)}$	0.2 Max.	APHA 4500 CN-D
6	Chromium (as Cr)	mg/l	$ND_{(DL-0.2)}$	2.0 Max.	IS 3025(P-52)-2003
7	Hexa Chromium (as Cr^{+6})	mg/l	$ND_{(DL-0.05)}$	0.1 Max.	IS 3025(P-52)-2003
8	Sulphide (as S)	mg/l	$ND_{(DL-0.1)}$	2 Max.	IS 3025(P-29)-2022
9	Phenol	mg/l	0.13	5 Max.	IS 3025(P-43/S-1)-2022
10	Fluoride (as F)	mg/l	1.10	15 Max.	APHA 4500-F D

ND=Not Detected, DL=Detection Limit

****End of Report****

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TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL WQT-20240423017
		Date of Receiving:	23/04/2024
		Date of Starting:	23/04/2024
		Date of Completion:	29/04/2024
Sample Description:	**Effluent Water Sample**	**Date of Reporting:**	29/04/2024
Work order Item:	Panipat Naphtha Cracker (Table-Q)	**Sample Quantity:**	2 Litre
Sample Collection Date:	22/04/2024	**Sample Packing Condition:**	Plastic Can
Sample ID:	**ETP Outlet Water**	**Sample Collected By:**	AAL

TEST RESULT

S. No.	Test parameters	Unit	Results	Permissible Limits (MINAS)	Testing Method
1	pH Value	-	7.63	6.5 – 8.5	IS 3025(P-11)-2022
2	Total Suspended Solids	mg/l	20.0	100 Max.	IS 3025 (P-17)-2022
3	Biochemical Oxygen Demand (BOD - 3 days at 27°C)	mg/l	19.5	30 Max.	IS 3025(P-44)-2023
4	Chemical Oxygen Demand (COD)	mg/l	92.0	250 Max.	IS 3025(P-58)-2023
5	Cyanide (as CN)	mg/l	$ND_{(DL-0.05)}$	0.2 Max.	APHA 4500 CN-D
6	Chromium (as Cr)	mg/l	$ND_{(DL-0.2)}$	2.0 Max.	IS 3025(P-52)-2003
7	Hexa Chromium (as Cr^{+6})	mg/l	$ND_{(DL-0.05)}$	0.1 Max.	IS 3025(P-52)-2003
8	Sulphide (as S)	mg/l	$ND_{(DL-0.1)}$	2 Max.	IS 3025(P-29)-2022
9	Phenol	mg/l	0.18	5 Max.	IS 3025(P-43/S-1)-2022
10	Fluoride (as F)	mg/l	1.15	15 Max.	APHA 4500-F D

ND=Not Detected, DL=Detection Limit

****End of Report****

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TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker. Panipat (Haryana)	**Report No.**	AAL WQT-20240323024
		Date of Receiving:	23/03/2024
		Date of Starting:	23/03/2024
		Date of Completion:	30/03/2024
Sample Description:	**Effluent Water Sample**	**Date of Reporting:**	30/03/2024
Work order Item:	Panipat Naphtha Cracker (Table-Q)	**Sample Quantity:**	2 Litre
Sample Collection Date:	23/03/2024	**Sample Packing Condition:**	Plastic Can
Sample ID:	**ETP Outlet Water**	**Sample Collected By:**	AAL

TEST RESULT

S. No.	Test parameters	Unit	Results	Permissible Limits (MINAS)	Testing Method
1	pH Value	-	7.57	6.5 – 8.5	IS 3025(P-11)-2022
2	Total Suspended Solids	mg/l	20.0	100 Max.	IS 3025 (P-17)-2022
3	Biochemical Oxygen Demand (BOD - 3 days at 27°C)	mg/l	17.0	30 Max.	IS 3025(P-44)-2023
4	Chemical Oxygen Demand (COD)	mg/l	93.0	250 Max.	IS 3025(P-58)-2023
5	Cyanide (as CN)	mg/l	$ND_{(DL-0.05)}$	0.2 Max.	APHA 4500 CN-D
6	Chromium (as Cr)	mg/l	$ND_{(DL-0.2)}$	2.0 Max.	IS 3025(P-52)-2003
7	Hexa Chromium (as Cr^{+6})	mg/l	$ND_{(DL-0.05)}$	0.1 Max.	IS 3025(P-52)-2003
8	Sulphide (as S)	mg/l	$ND_{(DL-0.1)}$	2 Max.	IS 3025(P-29)-2022
9	Phenol	mg/l	0.21	5 Max.	IS 3025(P-43/S-1)-2022
10	Fluoride (as F)	mg/l	1.13	15 Max.	APHA 4500-F D

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TEST REPORT

Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Report No.**	AAL WQT-20240226018
		Date of Receiving:	26/02/2024
		Date of Starting:	26/02/2024
		Date of Completion:	02/03/2024
Sample Description:	**Effluent Water Sample**	**Date of Reporting:**	02/03/2024
Work order Item:	Panipat Naphtha Cracker (Table-Q)	**Sample Quantity:**	2 Litre
Sample Collection Date:	24/02/2024	**Sample Packing Condition:**	Plastic Can
Sample ID:	**ETP Outlet Water**	**Sample Collected By:**	AAL

TEST RESULT

S. No.	Test parameters	Unit	Results	Permissible Limits (MINAS)	Testing Method
1	pH Value	-	7.48	6.5 – 8.5	IS 3025(P-11)-2022
2	Total Suspended Solids	mg/l	16.0	100 Max.	IS 3025 (P-17)-2022
3	Biochemical Oxygen Demand (BOD - 3 days at 27°C)	mg/l	20.0	30 Max.	IS 3025(P-44)-2023
4	Chemical Oxygen Demand (COD)	mg/l	87.0	250 Max.	IS 3025(P-58)-2023
5	Cyanide (as CN)	mg/l	$ND_{(DL-0.03)}$	0.2 Max.	APHA 4500 CN-D
6	Chromium (as Cr)	mg/l	$ND_{(DL-0.2)}$	2.0 Max.	IS 3025(P-52)-2003
7	Hexa Chromium (as Cr^{+6})	mg/l	$ND_{(DL-0.05)}$	0.1 Max.	IS 3025(P-52)-2003
8	Sulphide (as S)	mg/l	$ND_{(DL-0.1)}$	2 Max.	IS 3025(P-29)-2022
9	Phenol	mg/l	0.18	5 Max.	IS 3025(P-43/S-1)-2022
10	Fluoride (as F)	mg/l	1.10	15 Max.	APHA 4500-F D

ND=Not Detected, DL=Detection Limit

****End of Report****

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TEST CERTIFICATE

		Report No.	AAL WQT-20240131020
Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Date of Receiving:**	31/01/2024
		Date of Starting:	31/01/2024
		Date of Completion:	05/02/2024
Sample Description:	**Effluent Water Sample**	**Date of Reporting:**	05/02/2024
Work order Item:	Panipat Naphtha Cracker (Table-Q)	**Sample Quantity:**	2 Litre
Sample Collection Date:	30/01/2024	**Sample Packing Condition:**	Plastic Can
Sample ID:	**ETP Outlet Water**	**Sample Collected By:**	AAL

TEST RESULT

S. No.	Test parameters	Unit	Results	Permissible Limits (MINAS)	Testing Method
1	pH Value	-	7.59	6.5 – 8.5	IS 3025(P-11)-2022
2	Total Suspended Solids	mg/l	24.0	100 Max.	IS 3025 (P-17)-2022
3	Biochemical Oxygen Demand (BOD - 3 days at 27°C)	mg/l	18.2	30 Max.	IS 3025(P-44)-2023
4	Chemical Oxygen Demand (COD)	mg/l	87.0	250 Max.	IS 3025(P-58)-2023
5	Cyanide (as CN)	mg/l	ND(DL-0.05)	0.2 Max.	APHA 4500 CN-D
6	Chromium (as Cr)	mg/l	ND(DL-0.2)	2.0 Max.	IS 3025(P-52)-2003
7	Hexa Chromium (as Cr^{+6})	mg/l	ND(DL-0.05)	0.1 Max.	IS 3025(P-52)-2003
8	Sulphide (as S)	mg/l	ND(DL-0.1)	2 Max.	IS 3025(P-29)-2022
9	Phenol	mg/l	0.20	5 Max.	IS 3025(P-43/S-1)-2022
10	Fluoride (as F)	mg/l	1.19	15 Max.	APHA 4500-F D

ND=Not Detected, DL=Detection Limit

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4. This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory.
5. The non-perishable sample received shall be destroyed after one month and perishable sample shall be destroyed after one week from the date of issue of report unless specified.

ARIHANT ANALYTICAL LABORATORY PVT. LTD.

AN ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 CERTIFIED LABORATORY

272, Phase-IV, Sec-57, HSIIDC, Kundli, Sonepat-131028 (Haryana)
Ph. : 7082301442, 9250014551 Email : aalkundli@gmail.com
Website : www.aalkundli.com

TEST CERTIFICATE

		Report No.	AAL WQT-20231213009
Issued To:	**M/s Indian Oil Corporation Limited** (Refineries Division) Panipat Naphtha Cracker, Panipat (Haryana)	**Date of Receiving:**	13/12/2023
		Date of Starting:	13/12/2023
		Date of Completion:	18/12/2023
Sample Description:	**Effluent Water Sample**	**Date of Reporting:**	18/12/2023
Work order Item:	Panipat Naphtha Cracker (Table-Q)	**Sample Quantity:**	2 Litre
Sample Collection Date:	12/12/2023	**Sample Packing Condition:**	Plastic Can
Sample ID:	**ETP Outlet Water**	**Sample Collected By:**	AAL

TEST RESULT

S. No.	Test parameters	Unit	Results	Permissible Limits (MINAS)	Testing Method
1	pH Value	-	7.48	6.5 – 8.5	IS 3025(P-11)-2022
2	Total Suspended Solids	mg/l	27.0	100 Max.	IS 3025 (P-17)-2022
3	Biochemical Oxygen Demand (BOD - 3 days at 27°C)	mg/l	19.0	30 Max.	IS 3025(P-44)-2023
4	Chemical Oxygen Demand (COD)	mg/l	92.0	250 Max.	IS 3025(P-58)-2023
5	Cyanide (as CN)	mg/l	$ND_{(DL-0.05)}$	0.2 Max.	APHA 4500 CN-D
6	Chromium (as Cr)	mg/l	$ND_{(DL-0.2)}$	2.0 Max.	IS 3025(P-52)-2003
7	Hexa Chromium (as Cr^{+6})	mg/l	$ND_{(DL-0.05)}$	0.1 Max.	IS 3025(P-52)-2003
8	Sulphide (as S)	mg/l	$ND_{(DL-0.1)}$	2 Max.	IS 3025(P-29)-2022
9	Phenol	mg/l	0.18	5 Max.	IS 3025(P-43/S-1)-2022
10	Fluoride (as F)	mg/l	1.14	15 Max.	APHA 4500-FD

ND=Not Detected, DL=Detection Limit

****End of Report****

ASHUTOSH SRIVASTAVA
Deputy Technical Manager
Authorised Signatory

Panipat Refinery and Petrochemical complex

WORK AREA MONITORING FOR SOUND-PNC

Period/Date-13.06.2024 (Q-1, 2024-25)

Frequency of monitoring will be Quarterly

S. No.	Location name	Noise results	
		Day time (6.00 a.m. to 10.00 p.m) (Limit 75 dBA)*	Night time (10.00 p.m. to 6.00 a.m) (Limit 70 dBA)*
	PNC locations		
1	Near PNC ETP battery limit	65.5	65.1
2	Technology building	59.7	57.1
3	Gate no. 1	62.8	61.3
4	Gate No. 2 (Time office)	64.2	62.3
5	At the entry of flyover towards PNC.	65.7	64.9
6	Near Raw water pond (north west corner).	67	66.7
7	Boundary wall- alumina yard	62.5	60.3
8	Boundary wall DM plant	59.1	59
9	Near ETP C/R	63	62.1
10	MCR	60	59
11	Near storm water ponds (N-E)	66.3	65.7
12	Store	63	62.1
13	Admin building	68	65.1
14	CPP control room	59	58.6
15	Near QC lab	58	57.2
16	Near Workshop	70	67.2
17	Near Fire water pump house	68.9	66.3
18	Outside NCU Battery limit	70.4	69.4

*Note: as per Noise pollution (regulation and control) rules 2000

14-06-24
Ind. Hygienist

14/6
OHC Doctor Incharge

IndianOil

Panipat Refinery and Petrochemical complex

WORK AREA MONITORING FOR SOUND-PNC

Period/Date-24.02.2024 (Q-4, 2023-24)

Frequency of monitoring will be Quarterly

S. No.	Location name	Noise results	
		Day time (6.00 a.m. to 10.00 p.m) (Limit 75 dBA)*	Night time (10.00 p.m. to 6.00 a.m) (Limit 70 dBA)*
	PNC locations		
1	Near PNC ETP battery limit	61.1	58
2	Near MCR C/R	59.1	58.2
3	Technology building	57.1	55.2
4	Gate no. 1	57	56.8
5	Gate No. 2 (Time office)	55.8	55
6	At the entry of flyover towards PNC.	62	59
7	Near Raw water pond (north west corner).	64.6	64
8	Boundary wall- alumina yard	61.4	59
9	Boundary wall DM plant	62.1	62
10	Near ETP C/R	60	58.1
11	MCR	55.2	52.3
12	Near storm water ponds (N-E)	58.5	57.3
13	Store	55	53
14	Admin building	56.8	55.1
15	CPP control room	55.1	54.2
16	Near QC lab	54.2	53.1
17	Near Workshop	55.1	54.8
18	Near Fire water pump house	63.9	62.9
19	Outside NCU Battery limit	69.9	69

*Note: as per Noise pollution (regulation and control) rules 2000

26.02.2024

Ind. Hygienist

OHC Doctor Incharge