



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

पानपत रिफाइनरी एवं पेट्रोकेमिकल कॉम्प्लेक्स
पानपत, हरियाणा - 132140

Indian Oil Corporation Limited

Panipat Refinery & Petrochemical Complex

Panipat, Haryana - 132140

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रिफाइनरी प्रभाग
Refineries Division

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

Dates: 14.07.2022

To,
The Additional Director(S),
Ministry of Environment, Forest & 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 Jan 2022 to Jun 2022 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.

This is for your information

Thanking you

Yours faithfully,

(P.V. Ramakrishna) 14/7/2022

General Manager (HSE)

For and on behalf of IOCL

Panipat Refinery and Petrochemical Complex

श्री. वी. रामकृष्णा

P. V. Ramakrishna

जनरल मैनेजर (स्वास्थ्य, सुरक्षा, पर्यावरण)

General Manager (Health, Safety & Environment)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड (आई.ओ.सी.एल.)

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

पानपत, पानपत-132140

Enclosures: as above

CC: 1. The Regional Officer, HSPCB, Panipat

2. The Member Secretary, HSPCB, C-11, Sec-6, Panchkula

पंजीकृत कार्यालय: सी१९, अंधी यावर जंग मार्ग, बॉम्बे (पूर्व), मुंबई 400051, महाराष्ट्र
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CIN - 23201 MH 1959 GCL 011388

PANIPAT NAPHTHA CRACKER PROJECT

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

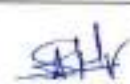
Six-monthly compliance report (Jan'22- Jun'22)

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, SO ₂ , NO _x 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 SO ₂ and NO _x . 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 SO ₂ 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 process vent standards for top priority chemicals. The company shall	Complied

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Sl. No.	Conditions stipulated in the EC letter	Status/Action plan
	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 M ³ /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.	Average waste water effluent from the NCC is 160 m ³ /hr. Treated effluent of stipulated quality as per HSPCB/CPCB standards, is recycled in DMRO and is reused for cooling service, greenbelt, dust suppression and firewater. Company is complying with the provision of no discharge of treated effluent into the Thirana drain.
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.



SL. No.	Conditions stipulated in the EC letter	Status/Action plan
X)	<p>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.</p> <p>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.</p>	<p>Green belt of 40 ha area has been provided all around the plant to mitigate the effects of fugitive emissions. Density of Green belt in the NW direction has also been increased.</p> <p>Further, plantation being done on both sides of approach roads and truck parking area.</p>
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.	Noted
II)	No further expansion or modification of the plant should be carried out without prior approval of Ministry of Environment & Forests.	Shall be ensured
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.	shall be ensured
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.

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
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
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.	Being followed
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.	Final approval of the project has been accorded by IOC's Board of Directors in their meeting on 22.12.2006



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'22- Jun'22)

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 16 th July 1992, J-11011/60/2000-IA-II (I) dated 9 th April, 2001, J-11011/52/2000-IA-II (I) dated 30 th April, 2001, J-11011/9/2001-IA-II (I) dated 6 th December, 2001, J-11011/153/2004-IA-II (I) dated 4 th January, 2005 and J-11011/7/2004-IA-II (I) dated 9 th August, 2004 shall be complied with.	Already complied. 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.	Noted
III)	Continuous on-line stack monitoring for SO ₂ , NO _x and CO of all the stacks shall be carried out. Low NO _x burners shall be installed.	No heater/ Furnace in the plant.
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.	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.
VII)	SO ₂ emissions after implementation of Butene-1 shall not exceed 138kg/hr.	Complied Total emission of PNC including this

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SL. No.	Conditions stipulated in the EC letter	Status/Action plan
		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 16 th 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 NAAQES 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 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.	The water requirement of 5 m3/hr of this plant is met from existing circuits. The overall water requirement of complete PNC is normally less than 1813 m3/hr from WJC canal. No ground water is being used.
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.

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
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, 2008 and amended time to time.	Fully Complied We send Environment statement to HSCB every year.
XVI)	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	No oil spillage.
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.	Since 2011, we have planted about 25000 trees in and around PNC.
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 23 rd 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 Being a small project in house manpower where utilized.
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 All consents are valid up to 30.09.2021
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.	Noted
III)	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous	Complied



SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	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.	PESO approval maintained.
IV)	The overall noise level 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 EPA Rules, 1989 viz. 75 dBA(daytime) and 70 dBA (night time).	Complied 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 31 st	Complied

SL. No.	Conditions stipulated in the EC letter	Status/Action plan
	<p>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 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.</p>	<p>Environment Statement is sent to HSPCB every year.</p>
XII)	<p>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.</p>	<p>Complied The message has been circulated through AMAR UJALA & THE TRIBUNE on 05.08.2014.</p>
XIII)	<p>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.</p>	<p>Complied</p>
XIV	<p>The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.</p>	<p>Noted</p>
XV	<p>The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.</p>	<p>Complied</p>
XVI	<p>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.</p>	<p>Complied</p>



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'22- Jun'22)

A. Specific conditions

S.No	Conditions stipulated in the EC letter	Status/Action Plan
I	The Ministry vide G.S.R 608 (E) dated 21 st July 2010 and amended time to time has prescribed emission and effluent standards that shall be complied by the unit.	Noted
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	Noted
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.	Noted
IV	SO ₂ emission after expansion from the plant shall not exceed 138kg/hr and further efforts shall be made for reducing of SO ₂ load through use of low sulphur fuel , sulphur recovery units shall be installed for control of H ₂ S emission.	Noted
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 PM ₁₀ ,PM _{2.5} , SO ₂ ,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 regional office of MOEF, The respective zonal of CPCB and the State Pollution control Board (MPCB).	Noted
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	Will be 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.	Will be complied
VIII	Total fresh water requirement from the canal shall not exceed shall not exceed 1700m ³ /hr (annual average) and prior permission shall be obtained from the competent authority be . No ground water shall be used without permission.	Will be complied
IX	The marginal waste water from SRU & ERU plant shall be sent 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 140m ³ /hr	Will be complied

S.No	Conditions stipulated in the EC letter	Status/Action Plan
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, SO ₂ , NO _x , CO ₂) 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 be implemented on priority.	Noted
XII	Regular VOC monitoring to be done at vulnerable points.	Being Done
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	Not applicable
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	Noted
XV	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Will be 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.	Will be 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	This is being complied already and will continues to do so in future
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.	This is being complied already and will continues to do so in future
XIX	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	This is being complied already and will continues to do so in future .
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.	Noted
XXI	As proposed green belt over33% shall be developed within plant premises with at least 10 meter wide green belt on all 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.	Complied

ER/V

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.	Noted
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.	Will be Complied
IV	The national Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 16 th 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.	Will be ensured after project execution
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.	This is being complied already and will continue to do so in future
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.	Will be Complied
IX	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.	Will be Complied
X	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
XI	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the	Complied

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
	Environmental Management and Monitoring functions.	
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.	Will be 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.	This is being complied already and will continue to do so in future
XV	The Environment statement for each financial year ending 31 st 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.	This is being complied already and will continue to do so in future
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.	Will be Complied. Date of financial closure of all project is 31st March every year

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'22- Jun'22)

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.	Noted
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.	Will be complied
IV	The national Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 15 th 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.	Will be 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.	This is being complied already and will continue to do so in future
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.	Will be Complied
IX	The company shall undertake all relevant measures for improving the	Will be 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.	Will be 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.	Will be 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.	This is being complied already and will continue to do so in future
XV	The Environment statement for each financial year ending 31 st 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.	This is being complied already and will continue to do so in future
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.	Will be Complied. Date of financial closure of all project is 31 st

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	Complied
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.	Will be 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.	Will be complied
IV	National emission Standard for Organic Chemicals Manufacturing industries issued by the Ministry vide G.S.R. 608 (E) dated 21 st July'2010 and amended from time to time be followed.	Will be complied
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.	Will be 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.	Will be complied
VII	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
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.	Will be 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.	Will be complied
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 of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	Continuous, Will be complied
XI	Regular VOC monitoring to be done at vulnerable points.	Will be complied
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.	Not applicable
XIII	Comprehensive water audit to be conducted on annual basis and	Noted



Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
	report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme.	
XIV	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Noted
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.	Will be 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.	Will be 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.	Will be ensured after project execution
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 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.	Will be ensured
XXI	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	This is being complied already and will continues to do so in future)

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'22- Jun'22)

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 m ³ /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.	Noted
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.	Noted
V	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Noted
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.	Noted
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.	Noted
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.	Noted
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.	Noted
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.	Noted
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.	Noted
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.	Noted
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.	Noted
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.	Noted

Sr. No.	Conditions stipulated in the EC letter	Status/Action Plan
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.	Noted
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



BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panpat Naptha Cracker
Haryana, INDIA

ULR No.: TC63662200000010, 031, 060, 100,128, 189, 293, 327
Test Report Date: 05/02/2022

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Quality Control Lab
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : Mr. Rishi Pal
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) µg/m3	Ozone (as O3) µg/m3	Lead (as Pb ²⁺) µg/m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) µg/m3	Nickel (as Ni ²⁺) ng/m3	Arsenic (as As ³⁺) ng/m3	Benzo (a)pyrene (as BAP*) ng/m3	Benzen e (C6H6 ⁶) µg/m3
03/01/2022	32.41	78.42	16.24	24.82	20.16	BDL	1.15	38.46	BDL	BDL	BDL	0.76
07/01/2022	30.48	82.64	18.61	28.41	22.54	BDL	1.12	46.82	BDL	BDL	BDL	0.82
10/01/2022	34.16	84.28	22.51	30.18	17.62	BDL	1.18	34.24	BDL	BDL	BDL	0.95
14/01/2022	31.58	88.66	20.82	26.14	21.82	BDL	1.16	36.22	BDL	BDL	BDL	1.04
17/01/2022	38.56	86.62	24.18	34.80	24.51	BDL	1.05	42.48	BDL	BDL	BDL	1.05
21/01/2022	42.18	90.68	26.84	40.12	18.68	BDL	1.09	44.66	BDL	BDL	BDL	1.06
24/01/2022	44.82	92.54	21.98	32.62	21.42	BDL	1.04	41.29	BDL	BDL	BDL	1.02
28/01/2022	34.84	85.94	23.66	38.86	23.62	BDL	1.07	37.88	BDL	BDL	BDL	1.16
Minimum	30.48	78.42	16.24	24.82	17.62	-	1.04	34.24	-	-	-	0.76
Maximum	44.82	92.54	26.84	40.12	24.51	-	1.18	44.66	-	-	-	1.16
Average	36.13	86.22	21.86	30.97	21.30	-	1.11	39.51	-	-	-	0.99
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	40CFR Appendix L Part 53 PCB Guidelines	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	IS:5182 (P-9)	NL/SOP/AAQ-11	IS:5182 (P-10)	Method of Air Sampling & Analysis	NL/SOP/AAQ-13	NL/SOP/AAQ-12	IS:5182 (P-12)	IS:5182 (P-11)

Remark:

* NAAQM: National Ambient Air Quality Standards, Schedule VI, (Rule 3-(1)(b))
BDL: Below Detection Limit, Arsenic: 0.01 µg/m³, Ni: 0.01 µg/m³, Pb: 0.01 µg/m³, Ozone: 0.01 µg/m³, Nickel: 0.01 µg/m³
Sample analysed within Seven days from the date of sampling.



TC-6366

(AUTHORISED SIGNATORY)
AUTHORISED SIGNATORY
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of the organization. Samples will be destroyed after 30 days from the date of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited to amount paid only. If you have any complaints/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924995.

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

ULR No.: TC636622000000333
Test Report Date: 08/02/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Waste Water & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 31/01/2022
Test Completed : 07/02/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 29/01/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	---	7.64	6.5-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	40	100 Max	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	110	250 Max	IS:3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	16	30 Max	IS:3025 (P-44)
5	Phenols (C ₆ H ₅ OH)	mg/L	0.88	1.0 Max	IS:3025 (P-43)
6	Sulphide (S)	mg/L	1.4	2.0 Max	IS:3025 (P-29)
7	Fluoride	mg/L	2.6	5.0 Max	IS:3025 (P-60)
8	Chromium Hexavalent (Cr ⁺⁶)	mg/L	0.06	0.1Max	IS:3025 (P-52)



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CORPORATE OFFICE & CENTRAL LABORATORIES :-

9 PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY BALLABGARH, FARIDABAD, HARYANA

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202201290110
Test Report Date: 08/02/2022

Sample Particulars

Nature of the Sample & No. of Sample	:	Waste Water & One No
Sample Quantity & Packaging	:	1.0 Liter, Pet Bottle
Test Started on	:	31/01/2022
Test Completed	:	07/02/2022
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	29/01/2022
Sampling Conducted By	:	Mr. Rishi Pal
Place of Sampling	:	ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	Cyanide (CN)	mg/L	BDL (LOQ-0.1)	0.20	APHA-23 rd Ed.
2	Total Chromium	mg/L	BDL(LOQ-0.05)	2.0	IS:3025 (P-52)


(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES :-

Plot No. 118, Church Road, Behind Kausik Vatika, Bhagat Singh Colony, Ballabgarh, Faridabad - 121004, Haryana, India

+91-129-2241071

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

ULR No.: TC636622000000387, 404, 416, 432, 514 545, 580, 633
Test Report Date: 05/03/2022

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Quality Control Lab
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : Mr. Rishi Pal
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) µg/m3	Ozone (as O3) µg/m3	Lead (as Pb ⁴) µg/m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) µg/m3	Nickel (as Ni ²⁺) ng/m ³	Arsenic (as As ³⁺) ng/m3	Benzo (a)pyrene (as BAP ⁴) ng/m ³	Benzene (C6H6 ⁵) µg/m3
01/02/2022	30.22	76.42	18.66	28.44	18.45	BDL	1.12	40.22	BDL	BDL	BDL	1.16
04/02/2022	26.45	80.44	22.02	30.86	20.69	BDL	1.14	44.61	BDL	BDL	BDL	1.08
08/02/2022	28.92	86.92	26.68	36.42	22.55	BDL	1.13	32.67	BDL	BDL	BDL	1.11
11/02/2022	32.45	84.62	21.91	28.24	17.85	BDL	1.11	34.95	BDL	BDL	BDL	1.14
15/02/2022	27.84	82.71	20.24	32.58	23.64	BDL	1.02	41.28	BDL	BDL	BDL	1.07
18/02/2022	30.66	88.28	24.28	38.64	20.95	BDL	1.06	42.46	BDL	BDL	BDL	1.02
21/02/2022	35.60	90.92	23.92	34.28	18.94	BDL	1.01	44.98	BDL	BDL	BDL	1.08
25/02/2022	32.82	81.86	21.52	31.62	21.44	BDL	1.05	36.48	BDL	BDL	BDL	1.12
Minimum	26.45	76.42	18.66	28.24	17.85	-	1.01	32.67	-	-	-	1.02
Maximum	35.60	90.92	26.68	38.64	23.64	-	1.14	44.98	-	-	-	1.16
Average	30.62	84.02	22.52	32.64	20.56	-	1.08	39.73	-	-	-	1.10
NAAQM Standards	60	100	80	80	100	1	1	400	20	6	1	5
Test Method	40CFR Appendix L Part 53 CPCB Guidelines	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	IS:5182 (P-9)	NL/SOP/AAQ-11	IS:5182 (P-10)	Method of Air Sampling & Analysis	NL/SOP/AAQ-13	NL/SOP/AAQ-12	IS:5182 (P-12)	IS:5182 (P-11)

Remark:

*NAAQS: National Ambient Air Quality Standards; Schedule-VI, (Rule 3 (88)), (Part-II-sec-39(i) 16.11.2009

BDL-Below Detection Limit, ⁴Arsenic-BDL [LOQ: 0.5], ⁵BAP-BDL [LOQ: 0.5], ⁶Benzene-BDL [LOQ: 0.5], ⁷Lead-BDL [LOQ: 0.5], ⁸Nickel-BDL [LOQ: 1.0]

Sample Analyzed within seven days from the date of sampling.



(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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TC-6366

CORPORATE OFFICE & CENTRAL LABORATORIES :-

PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

ULR No.: TC636622000000476-460, 516-520, 537-540, 547

Test Report Date: 25/02/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS: 11255 (Part 7)
Monitoring Conducted By : Mr. Rishi Pal

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Particulate Matters ¹ (as PM)		Nickel & Vanadium ² (as Ni & V) ²		
								mg/Nm ³	Kg/hr	mg/Nm ³	Kg/hr	PPM
1	Stack-1 CPP HRSG 1	14/02/2022	70	3.30	29	107	9.74	8.97	2.1	BDL	-	-
2	Stack-2 CPP HRSG 3	14/02/2022	70	3.30	28	112	10.03	7.21	1.7	BDL	-	-
3	Stack-3 CPP HRSG 4	14/02/2022	70	3.30	29	123	9.41	7.52	1.6	BDL	-	-
4	Stack-4 CPP UB1	14/02/2022	70	3.30	27	119	9.04	8.01	1.7	BDL	-	-
5	Stack-5 CPP UB2	14/02/2022	70	3.30	27	139	9.60	8.36	1.8	BDL	-	-
6	Stack-6 NCU H100	15/2/2022	70	3.10	26	129	9.32	7.72	1.4	BDL	-	-
7	Stack-7 NCU H200	15/2/2022	70	3.10	25	125	10.10	6.38	1.3	BDL	-	-
8	Stack-8 NCU H300	15/2/2022	70	3.10	27	128	9.42	7.82	1.5	BDL	-	-
9	Stack-9 NCU H400	15/2/2022	70	3.10	32	225	11.09	9.02	1.6	BDL	-	-
10	Stack-10 NCU H500	15/2/2022	70	3.10	31	127	9.54	8.20	1.6	BDL	-	-
11	Stack-11 NCU H600	17/02/2022	70	3.10	21	128	10.41	7.48	1.6	BDL	-	-
12	Stack-12 NCU H700	17/02/2022	70	3.10	21	133	10.14	7.83	1.6	BDL	-	-
13	Stack-13 Swing Unit DTA/VAP-02	17/02/2022	70	1.80	25	174	9.71	BDL	BDL	BDL	-	-
14	Stack-14 Swing Unit DTA/VAP-01	17/02/2022	70	1.80	27	181	9.51	BDL	BDL	BDL	-	-
15	Stack-15 MEG Unit	18/02/2022	70	3.10	22	298	11.33	7.64	1.2	BDL	-	-
Permissible Limits (mg/Nm³)							Gas	10		-		
							Liquid	100		5		
Test Method							IS:11255 (P-1)		USEPA Method 29 By AAS			

Remark:

BDL-Below Detection Limit, ¹ Particulate Matters (as PM)-BDL (SO₂-5.0), ² Nickel & Vanadium (as Ni & V)-BDL (LOQ-0.5)
Sample Analyzed within six days from the date of sampling.



(Signature)
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(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES :-

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202202140110-114, 202202150110-114,
202202170110-113, 202202180110
Test Report Date: 25/02/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS: 11255 (Part 7)
Monitoring Conducted By : Mr. Rishi Pal

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Oxides of Sulphur (as SO _x)			Oxides of Nitrogen (as NO _x)		
								mg/Nm ³	Kg/hr	PPM	mg/Nm ³	Kg/hr	PPM
1	Stack-1 CPP HRSG 1	14/02/2022	70	3.30	29	107	9.74	7	1.6	3.7	68	16.00	36.14
2	Stack-2 CPP HRSG 3	14/02/2022	70	3.30	28	112	10.03	5	1.2	2.7	265	63.37	140.85
3	Stack-3 CPP HRSG 4	14/02/2022	70	3.30	29	123	9.41	6	1.3	3.2	46	10.04	24.45
4	Stack-4 CPP UB1	14/02/2022	70	3.30	27	119	9.04	9	1.9	4.8	174	36.81	92.48
5	Stack-5 CPP UB2	14/02/2022	70	3.30	27	139	9.60	6	1.3	3.2	123	26.31	65.38
6	Stack-6 NCU H100	15/2/2022	70	3.10	26	129	9.32	4	0.8	2.1	43	8.07	22.86
7	Stack-7 NCU H200	15/2/2022	70	3.10	25	125	10.10	5	1.0	2.7	37	7.60	19.67
8	Stack-8 NCU H300	15/2/2022	70	3.10	27	128	9.42	7	1.3	3.7	37	7.04	19.67
9	Stack-9 NCU H400	15/2/2022	70	3.10	32	225	11.09	9	1.6	4.8	31	5.59	16.48
10	Stack-10 NCU H500	15/2/2022	70	3.10	31	127	9.54	6	1.2	3.2	105	20.29	55.81
11	Stack-11 NCU H600	17/02/2022	70	3.10	21	129	10.41	6	1.3	3.2	24	5.05	12.76
12	Stack-12 NCU H700	17/02/2022	70	3.10	21	133	10.14	3	0.6	1.6	29	5.87	15.41
13	Stack-13 Swing Unit DTA/VAP-02	17/02/2022	70	1.80	25	174	9.71	3	0.2	1.6	92	5.46	48.90
14	Stack-14 Swing Unit DTA/VAP-01	17/02/2022	70	1.80	27	181	5.51	6	0.3	3.2	90	5.15	47.84
15	Stack-15 MEG Unit	18/02/2022	70	3.10	22	298	11.33	3	0.5	1.6	14	2.25	7.44
Permissible Limits (mg/Nm³)							Gas	50			350		
							Liquid	1700			450		

Remarks:

NDL-Below Detection Limit, Oxides of Sulphur (as SO_x)-ED, (0.0)-1.0
Sample Analysed within six days from the date of sampling. All above Parameters are measured with Flue Gas Analyser.


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(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202202140110-114, 202202150110-114,
202202170110-113, 202202180110
Test Report Date: 25/02/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS: 11255 (Part 7)
Monitoring Conducted By : Mr. Rishi Pal

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Carbon Monoxide (as CO)		
								mg/Nm ³	Kg/hr	PPM
1	Stack-1 CPP HRSG 1	14/02/2022	70	3.30	29	107	9.74	415	97.64	362.25
2	Stack-2 CPP HRSG 3	14/02/2022	70	3.30	28	112	10.03	818	195.60	714.03
3	Stack-3 CPP HRSG 4	14/02/2022	70	3.30	29	123	9.41	70	15.27	61.10
4	Stack-4 CPP UB1	14/02/2022	70	3.30	27	119	9.04	12	2.54	10.47
5	Stack-5 CPP UB2	14/02/2022	70	3.30	27	139	9.60	2	0.43	1.75
6	Stack-6 NCU H160	15/2/2022	70	3.10	26	129	9.32	6	1.13	5.24
7	Stack-7 NCU H200	15/2/2022	70	3.10	25	125	10.10	11	2.26	9.60
8	Stack-8 NCU H300	15/2/2022	70	3.10	27	128	9.42	30	5.71	26.19
9	Stack-9 NCU H400	15/2/2022	70	3.10	32	225	11.09	34	6.13	29.68
10	Stack-10 NCU H500	15/2/2022	70	3.10	31	127	9.54	13	2.51	11.35
11	Stack-11 NCU H600	17/02/2022	70	3.10	21	128	10.41	5	1.05	4.36
12	Stack-12 NCU H700	17/02/2022	70	3.10	21	133	10.14	7	1.42	6.11
13	Stack-13 Swing Unit DTA/VAP-02	17/02/2022	70	1.80	25	174	9.71	5	0.30	4.36
14	Stack-14 Swing Unit DTA/VAP-01	17/02/2022	70	1.80	27	181	9.51	1	0.06	0.87
15	Stack-15 MEG Unit	18/02/2022	70	3.10	22	298	11.33	52	8.36	45.39
Permissible Limits (mg/Nm³)							Gas	150		
							Liquid	200		

Remark:

BDL-Below Detection Limit, Carbon Monoxide (as CO) BDL (LDG-LD)
Sample Analyzed within six days from the date of sampling. All above Parameters are measures with Flue Gas Analyser.

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(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

ULR No.: TC636622000000609

Test Report Date: 04/03/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Waste Water & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 24/02/2022
Test Completed : 03/03/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 23/02/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet :MNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.85	6.5-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	46	100 Max	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	120	250 Max	IS:3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	14	30 Max	IS:3025 (P-44)
5	Phenols (C ₆ H ₅ OH)	mg/L	0.82	1.0 Max	IS:3025 (P-43)
6	Sulphide (S)	mg/L	1.6	2.0 Max	IS:3025 (P-29)
7	Fluoride	mg/L	2.2	5.0 Max	IS:3025 (P-60)
8	Chromium Hexavalent (Cr ⁺⁶)	mg/L	0.08	0.1Max	IS:3025 (P-52)



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(RAVINDER MITTAL)

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Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Paripat Naptha Cracker
Haryana, INDIA

Test Report No.: 202202230117
Test Report Date: 04/03/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Waste Water & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 24/02/2022
Test Completed : 03/03/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 23/02/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	Cyanide (CN)	mg/L	BOL (LOQ-0.1)	0.20	APHA-23 rd Ed.
2	Total Chromium	mg/L	BOL (LOQ-0.05)	2.0	IS:3025 (P-52)


(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202203030114, 202203070115, 202203110119, 202203140115
202203180111, 202203210115, 202203250127, 202203280111
Test Report Date: 04/04/2022

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Quality Control Lab
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : Mr. Rishi Pal
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) µg/m3	Ozone (as O3) µg/m3	Lead (as Pb) µg/m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) µg/m3	Nickel (as Ni) ng/m3	Arsenic (as As) ng/m3	Benzo(a)pyrene (as BAP) ng/m3	Benzene (C6H6) µg/m3
03/03/2022	34.16	80.16	16.28	25.16	16.22	ND	1.04	36.18	ND	ND	ND	1.14
07/03/2022	28.24	76.44	20.44	30.82	21.92	ND	1.12	40.24	ND	ND	ND	1.02
11/03/2022	32.14	84.12	18.92	32.73	20.24	ND	1.16	34.92	ND	ND	ND	1.14
14/03/2022	26.18	78.94	22.48	26.18	21.84	ND	1.06	32.10	ND	ND	ND	1.06
18/03/2022	30.60	82.18	17.94	28.41	18.42	ND	1.05	44.64	ND	ND	ND	1.02
21/03/2022	36.42	88.68	20.82	30.11	22.64	ND	1.11	38.18	ND	ND	ND	1.10
25/03/2022	32.84	80.92	22.16	36.72	24.18	ND	1.03	40.84	ND	ND	ND	1.02
28/03/2022	39.98	78.62	18.24	26.82	19.84	ND	1.15	37.92	ND	ND	ND	1.04
Minimum	26.18	76.44	16.28	25.16	16.22	-	1.03	32.10	-	-	-	1.02
Maximum	36.42	88.68	22.48	36.72	24.18	-	1.16	44.64	-	-	-	1.14
Average	31.45	81.26	19.66	29.62	20.66	-	1.09	38.13	-	-	-	1.07
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	40CFR Appendix L Part 53 CPCII Guidelines	IS:5182 (P-13)	IS:5182 (P-2)	IS:5182 (P-6)	IS:5182 (P-9)	NL/SOP/AAQ-11	IS:5182 (P-10)	Method of Air Sampling & Analysis	NL/SOP/AAQ-13	NL/SOP/AAQ-12	IS:5182 (P-12)	IS:5182 (P-11)

Remark:

*NAAQS: National Ambient Air Quality Standards; Schedule-VI, (Rule 3(2B), (Part-II-sec.-5)) 16.11.2009
ND-Below Detection Limit, *Arsenic-ND [DL- 0.5], *BAP-ND [DL- 0.5], *Benzene-ND [DL- 0.5], *Lead-ND [DL- 0.5], *Nickel-ND [DL- 1.0]
Sample Analysed within Seven days from the date of sampling.


(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202203280114
Test Report Date: 05/04/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Wastewater & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 29/03/2022
Test Completed : 04/04/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 28/03/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.28	6.5-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	52	100 Max	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	130	250 Max	IS:3025 (P-5B)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	16	30 Max	IS:3025 (P-44)
5	Phenols (C ₆ H ₅ OH)	mg/L	0.88	1.0 Max	IS:3025 (P-43)
6	Sulphide (S)	mg/L	1.8	2.0 Max	IS:3025 (P-29)
7	Fluoride	mg/L	2.1	5.0 Max	IS:3025 (P-60)
8	Chromium Hexavalent (Cr ⁺⁶)	mg/L	0.06	0.1Max	IS:3025 (P-52)


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(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202203280114

Test Report Date: 05/04/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Waste Water & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 29/03/2022
Test Completed : 04/04/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 28/03/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	Cyanide (CN)	mg/L	ND (DL-0.1)	0.20	APHA-23 rd Ed.
2	Total Chromium	mg/L	ND (DL-0.05)	2.0	IS:3025 (P-52)


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(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES :-

9 PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202204010111, 202204040112, 202204080111, 202204110115
202204150115, 202204180114, 20220420115, 202204220123
202204290115
Test Report Date: 07/05/2022

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Quality Control Lab
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : Mr. Rishi Pal
Sampling Duration (Hrs) : 24 Hrs

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) ug/m3	Particulate Matter (PM10) ug/m3	Sulphur Dioxide (as SO2) ug/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb ⁴) ug/m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni ²) ng/m ³	Arsenic (as As ³) ng/m ³	Benzo (a)pyrene (as BAP ⁴) ng/m ³	Benzone (C6H6 ⁵) ug/m3
01/04/2022	32.64	83.42	18.61	24.22	18.22	ND	1.06	38.41	ND	ND	ND	1.12
04/04/2022	30.42	80.55	22.42	34.68	20.47	ND	1.14	44.68	ND	ND	ND	1.06
08/04/2022	28.44	82.61	17.58	30.24	22.91	ND	1.05	36.28	ND	ND	ND	1.08
11/04/2022	31.54	83.42	23.65	28.66	20.44	ND	1.02	31.44	ND	ND	ND	1.02
15/04/2022	33.29	85.66	20.80	31.24	21.46	ND	1.12	40.58	ND	ND	ND	1.12
18/04/2022	35.41	81.22	23.48	32.86	23.85	ND	1.13	34.20	ND	ND	ND	1.16
22/04/2022	36.14	84.46	19.82	30.84	19.82	ND	1.08	34.16	ND	ND	ND	1.08
25/04/2022	33.42	80.71	20.44	32.88	22.48	ND	1.12	40.64	ND	ND	ND	1.12
Minimum	28.44	80.55	17.58	24.22	18.22	-	1.02	31.44	-	-	-	1.02
Maximum	36.14	85.66	23.65	34.68	23.85	-	1.14	44.68	-	-	-	1.16
Average	32.66	82.76	20.85	30.70	21.21	-	1.09	37.55	-	-	-	1.10
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	40CFR Appendix L Part 53 CPC8 Guidelines	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	IS:5182 (P-9)	NL/SOP /AAQ- 11	IS:5182 (P-10)	Method of Air Sampling & Analysis	NL/SO P/AAQ -13	NL/SO P/AAQ -12	IS:5182 (P-12)	IS:5182 (P-11)

Remark:

*NAAQS: National Ambient Air Quality Standards, Schedule VIII (Rule 3 (3)(b)), (Part-I-sec-3(i)), 10-11-2009
 ND-Below Detection Limit, Arsenic-ND (DL-0.5), BAP-ND (DL-0.5), Benzene-ND (DL-0.5), Lead-ND (DL-0.5), Nickel-ND (DL-1.0)
 *Sample Analyzed within Seven days from the date of sampling


 (AUTHORISED SIGNATORY)
 (RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202204260122-127, 202204270117-119,
202204280113-116, 202204290120-122
Test Report Date: 07/05/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS- 11255 (Part. 7)
Monitoring Conducted By : Mr. Rishi Pal

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Particulate Matters ¹ (as PM)		Nickel & Vanadium ² (as Ni & V) ²		
								mg/Nm ³	Kg/hr	mg/Nm ³	Kg/hr	PPH
1	Stack-1 CPP HRSG 1	26-04-2022	70	3.30	40	119	10.04	6.89	1.6	ND	-	-
2	Stack-2 CPP HRSG 2	26-04-2022	70	3.30	40	112	10.10	5.9	1.4	ND	-	-
3	Stack-3 CPP HRSG 3	26-04-2022	70	3.30	40	121	9.71	8.21	1.9	ND	-	-
4	Stack-4 CPP HRSG 4	26-04-2022	70	3.30	40	117	10.36	8.59	2.1	ND	-	-
5	Stack-5 CPP HRSG 5	26-04-2022	70	3.30	39	130	10.03	9.26	2.1	ND	-	-
6	Stack-6 CPP UB1	26-04-2022	70	3.30	37	132	9.68	7.32	1.6	ND	-	-
7	Stack-7 Swing Unit DTA/VAP-02	27-04-2022	70	1.80	32	187	11.39	ND	ND	ND	-	-
8	Stack-8 Swing Unit DTA/VAP-01	27-04-2022	70	1.80	31	176	11.46	ND	ND	ND	-	-
9	Stack-9 MEG Unit	27-04-2022	70	3.10	34	321	11.95	9.39	1.5	ND	-	-
10	Stack-10 NCU H100	28-04-2022	70	3.10	44	119	9.31	6.89	1.3	ND	-	-
11	Stack-11 NCU H200	28-04-2022	70	3.10	45	127	8.80	7.38	1.3	ND	-	-
12	Stack-12 NCU H400	28-04-2022	70	3.10	42	156	9.88	8.36	1.6	ND	-	-
13	Stack-13 NCU H500	28-04-2022	70	3.10	42	142	9.56	9.47	1.8	ND	-	-
14	Stack-14 NCU H300	29-04-2022	70	3.10	38	121	9.89	8.29	1.7	ND	-	-
15	Stack-15 NCU H600	29-04-2022	70	3.10	37	146	10.01	7.49	1.4	ND	-	-
16	Stack-16 NCU H700	29-04-2022	70	3.10	37	152	10.08	8.24	1.6	ND	-	-
Permissible Limits (mg/Nm ³)							Gas	10		-		
							Liquid	100		5		
Test Method							IS:11255 (P-1)		USEPA Method 29 By AAS			

Remark:

ND- Below Detection Limit, ¹ Particulate Matters (as PM) ND (DL- 5.0), ² Nickel & Vanadium (as Ni & V) ND (DL- 0.5)
Sample Analyzed within six days from the date of sampling.



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(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202204260122-127, 202204270117-119,
202204280113-116, 202204290120-122
Test Report Date: 07/05/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS: 11255 (Part 7)
Monitoring Conducted By : Mr. Rishi Pal

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Oxides of Sulphur (as SO _x)			Oxides of Nitrogen (as NO _x)		
								mg/Nm ³	Kg/hr	PPM	mg/Nm ³	Kg/hr	PPM
1	Stack-1 CPP HRSG 1	26-04-2022	70	3.30	40	119	10.04	8	1.9	4.3	162	38.09	86.11
2	Stack-2 CPP HRSG 2	26-04-2022	70	3.30	40	112	10.10	9	2.2	4.8	158	38.06	83.98
3	Stack-3 CPP HRSG 3	26-04-2022	70	3.30	40	121	9.71	7	1.6	3.7	183	41.39	97.27
4	Stack-4 CPP HRSG 4	26-04-2022	70	3.30	40	117	10.36	9	2.2	4.8	78	19.03	41.46
5	Stack-5 CPP HRSG 5	26-04-2022	70	3.30	39	130	10.03	20	4.6	10.6	293	66.94	155.74
6	Stack-6 CPP UB1	26-04-2022	70	3.30	37	132	9.68	9	2.0	4.8	54	11.85	28.70
7	Stack-7 Swing Unit OTA/VAP-02	27-04-2022	70	1.80	32	187	11.39	9	0.6	4.8	127	8.59	67.50
8	Stack-8 Swing Unit OTA/VAP-01	27-04-2022	70	1.80	31	176	11.48	8	0.6	4.3	117	8.17	62.19
9	Stack-9 MEG Unit	27-04-2022	70	3.10	34	321	11.95	16	2.6	8.5	24	3.91	12.76
10	Stack-10 NCU H100	28-04-2022	70	3.10	44	119	9.33	3	0.6	1.6	74	14.23	39.33
11	Stack-11 NCU H200	28-04-2022	70	3.10	45	127	8.80	6	1.1	3.2	60	10.69	31.89
12	Stack-12 NCU H400	28-04-2022	70	3.10	42	156	9.88	3	0.6	1.6	74	13.81	39.33
13	Stack-13 NCU H500	28-04-2022	70	3.10	42	142	9.96	3	0.6	1.6	82	15.05	41.58
14	Stack-14 NCU H300	29-04-2022	70	3.10	38	121	9.89	34.2	1.4	3.7	99	20.13	52.62
15	Stack-15 NCU H600	29-04-2022	70	3.10	37	146	10.01	13.9	0.6	1.6	70	13.55	37.21
16	Stack-16 NCU H700	29-04-2022	70	3.10	37	152	10.08	32.3	1.3	3.7	99	19.02	52.62
							Gas	50			350		
							Liquid	1700			450		

Remarks:

NO below detection limit. Oxides of Sulphur (as SO_x) (IS: 11255)
Sample Analyzed within six days from the date of sampling. All other Parameters are measured with Gas Gas Analyser.



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(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES :-

Q PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panspat Naptha Cracker
Haryana, INDIA

Test Report No.: 202204260122-127, 202204270117-119,
202204280113-116, 202204290120-122
Test Report Date: 07/05/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS- 11255 (Part 7)
Monitoring Conducted By : Mr. Rishi Pal

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Carbon Monoxide (as CO)		
								mg/Nm ³	Kg/hr	PPM
1	Stack-1 CPP HRSG 1	26-04-2022	70	3.30	40	119	10.04	121	28.45	105.62
2	Stack-2 CPP HRSG 2	26-04-2022	70	3.30	40	112	10.10	115	27.70	100.38
3	Stack-3 CPP HRSG 3	26-04-2022	70	3.30	40	121	9.71	122	27.59	106.49
4	Stack-4 CPP HRSG 4	26-04-2022	70	3.30	40	117	10.36	86	20.98	75.07
5	Stack-5 CPP HRSG 5	26-04-2022	70	3.30	39	130	10.03	90	22.30	85.54
6	Stack-6 CPP UB1	26-04-2022	70	3.30	37	132	9.68	18	3.95	15.71
7	Stack-7 Swing Unit DTA/VAP-02	27-04-2022	70	1.80	32	187	11.39	1	0.07	0.87
8	Stack-8 Swing Unit DTA/VAP-01	27-04-2022	70	1.80	31	176	11.48	1	0.07	0.87
9	Stack-9 NEG Unit	27-04-2022	70	3.10	34	321	11.95	142	23.14	123.95
10	Stack-10 NCU H100	28-04-2022	70	3.10	44	119	9.31	1	0.19	0.87
11	Stack-11 NCU H200	28-04-2022	70	3.10	45	127	8.80	10	1.21	15.71
12	Stack-12 NCU H400	28-04-2022	70	3.10	42	156	9.08	27	4.29	20.06
13	Stack-13 NCU H500	28-04-2022	70	3.10	42	142	9.96	19	3.60	16.59
14	Stack-14 NCU H300	29-04-2022	70	3.10	38	121	9.89	34	6.91	29.68
15	Stack-15 NCU H600	29-04-2022	70	3.10	37	146	10.01	40	7.74	34.92
16	Stack-16 NCU H700	29-04-2022	70	3.10	37	152	10.08	65	12.49	56.74
Permissible Limits (mg/Nm³)							Gas	150		
							Liquid	200		

Remark

NO: 01/2022 (Carbon Monoxide) as per IS: 11255 (Part 7)
Sample Analysis within 15 days from the date of sampling. All other parameters are in accordance with the Gas Analysis

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CORPORATE OFFICE & CENTRAL LABORATORIES :-

Plot No. 119, Panchsheel Road, Behind Kausik Vatika, Bhagat Singh Colony, Ballabhgarh, Faridabad - 121004, Haryana, India

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202204250112
Test Report Date: 30/04/2022

Sample Particulars

Nature of the Sample & No. of Sample : Wastewater & One No
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 26/04/2022
Test Completed : 30/04/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 25/04/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	---	7.64	6.5-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	68	100 Max	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	150	250 Max	IS:3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	14	30 Max	IS:3025 (P-44)
5	Phenols (C ₆ H ₅ OH)	mg/L	0.84	1.0 Max	IS:3025 (P-43)
6	Sulphide (S)	mg/L	1.4	2.0 Max	IS:3025 (P-29)
7	Fluoride	mg/L	2.6	5.0 Max	IS:3025 (P-60)
8	Chromium Hexavalent (Cr ^{VI})	mg/L	0.08	0.1Max	IS:3025 (P-52)
9	Cyanide (CN)	mg/L	ND (DL-0.1)	0.20	APHA-23 rd Ed
10	Total Chromium	mg/L	ND (DL-0.05)	2.0	IS:3025 (P-52)

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(RAVINDER MITTAL)

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BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202205010121, 202206010118, 202205090126, 202205130121
202205160115, 202205200122, 202205230118, 202205270115
202205300115
Test Report Date: 07/06/2022

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Quality Control Lab
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : Mr. Rishi Pal
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m ³	Particulate Matter (PM10) µg/m ³	Sulphur Dioxide (as SO ₂) µg/m ³	Nitrogen Dioxide (as NO ₂) µg/m ³	Ozone (as O ₃) µg/m ³	Lead (as Pb ²⁺) µg/m ³	Carbon Monoxide (as CO) mg/m ³	Ammonia (as NH ₃) µg/m ³	Nickel (as Ni ²⁺) ng/m ³	Arsenic (as As ³⁺) ng/m ³	Benzo(a)pyrene (as BAP*) ng/m ³	Benzen e (C ₆ H ₆ *) µg/m ³
02/05/2022	28.16	80.40	20.42	26.48	16.24	ND	1.02	34.68	ND	ND	ND	1.14
06/05/2022	34.28	86.42	24.16	32.16	18.26	ND	1.12	40.24	ND	ND	ND	1.08
09/05/2022	30.18	82.16	22.10	34.60	20.82	ND	1.04	32.80	ND	ND	ND	1.04
13/05/2022	32.62	84.24	18.42	24.22	22.64	ND	1.06	34.62	ND	ND	ND	1.14
16/05/2022	30.82	82.66	21.40	36.48	20.26	ND	1.14	32.82	ND	ND	ND	1.10
20/05/2022	36.48	88.60	18.64	30.24	24.68	ND	1.10	36.44	ND	ND	ND	1.14
23/05/2022	34.24	81.46	22.16	28.46	21.58	ND	1.06	32.80	ND	ND	ND	1.06
27/05/2022	32.82	82.82	24.48	30.22	20.26	ND	1.10	38.40	ND	ND	ND	1.14
30/05/2022	36.59	81.28	25.48	31.29	21.27	ND	1.02	37.47	ND	ND	ND	1.11
Minimum	28.16	80.40	18.42	24.22	16.24	-	1.02	32.8	-	-	-	1.04
Maximum	36.59	88.60	25.48	36.48	24.68	-	1.14	40.24	-	-	-	1.14
Average	32.91	83.34	21.94	30.46	20.67	-	1.07	35.59	-	-	-	1.11
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	40CFR Appendix L Part 53 CPCS Guidelines	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	IS:5182 (P-9)	NL/SOP /AAQ-11	IS:5182 (P-10)	Method of Air Sampling & Analysis	NL/SO P/AAQ -13	NL/SO P/AAQ -12	IS:5182 (P-12)	IS:5182 (P-11)

Remark:

*NAAQM: National Ambient Air Quality Standards; Schedule-VI, (Rule 3 (5)(i)), (Part-II) (Sec-3(1)) 18.11.2009

ND-Below Detection Limit, *Arsenic-ND [DL-0.5], *BAP-ND [DL-0.5], *Benzen-ND [DL-0.5], *Lead-ND [DL-0.5], *Nickel-ND [DL-1.0] Sample Analysed within seven days from the date of sampling.

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202205270130
Test Report Date: 04/06/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Wastewater & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 28/05/2022
Test Completed : 03/06/2022
Method of Sampling : SOP/B/D-3
Date of Sampling : 27/05/2022
Sampling Conducted By : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.86	6.5-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	62	100 Max	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	160	250 Max	IS:3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	18	30 Max	IS:3025 (P-44)
5	Phenols (C ₆ H ₅ OH)	mg/L	0.88	1.0 Max	IS:3025 (P-43)
6	Sulphide (S)	mg/L	1.8	2.0 Max	IS:3025 (P-29)
7	Fluoride	mg/L	2.4	5.0 Max	IS:3025 (P-60)
8	Chromium Hexavalent (Cr ⁺⁶)	mg/L	0.04	0.1Max	IS:3025 (P-52)
9	Cyanide (CN)	mg/L	ND (DL-0.1)	0.20	APHA-23 rd Ed.
10	Total Chromium	mg/L	ND (DL-0.05)	2.0	IS:3025 (P-52)



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(RAVINDER MITTAL)

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PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA

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

Test Report No.: 202206290115-117, 202206290113-117, 202206290115-118
202206290117-121, 202206290110
Test Report Date: 07/07/2022

Sample Particulars

Nature of the Sample : **Stack Monitoring**
Purpose of Monitoring : **To Check the Pollution Load**
Method of Sampling : **IS-11295 (Part 7)**
Monitoring Conducted By : **Mr. Kishu Raj**

Sr. No.	Stack Particulars	Date of Sampling	Stack Height (mtr.)	Stack Dia. (mtr.)	Ambient Temp. (°C)	Stack Temp. (°C)	Average Gas Velocity (m/s)	Oxides of Sulphur (as SO ₂)			Oxides of Nitrogen (as NO _x)		
								mg/Nm ³	Kg/hr	PPM	mg/Nm ³	Kg/hr	PPM
1	Stack-1 Sewing Unit (DTAWM10)	24-06-2022	70	1.40	32	165	0.94	0	0.3	3.2	09	4.90	46.77
2	Stack-2 Sewing Unit (DTAWM01)	24-06-2022	70	1.40	30	185	0.90	0	0.4	4.3	88	6.67	46.77
3	Stack-3 MSG Unit	25-06-2022	70	3.10	29	212	9.10	23	3.5	12.2	122	18.24	191.05
4	Stack-4 NCU F000	25-06-2022	70	3.10	41	196	9.90	6	1.0	3.2	39	17.01	52.67
5	Stack-5 NCU H000	25-06-2022	70	3.10	45	195	10.13	6	1.1	3.2	90	15.75	47.84
6	Stack-6 NCU H500	25-06-2022	70	3.10	35	178	8.97	6	1.0	3.2	84	11.53	44.65
7	Stack-7 NCU H600	25-06-2022	70	3.10	31	185	9.01	6	1.0	3.2	94	14.92	49.60
8	Stack-8 NCU H700	25-06-2022	70	3.10	30	190	9.99	3	0.5	1.6	64	10.57	34.62
9	Stack-9 NCU H100	27-06-2022	70	3.10	35	130	4.72	3	0.5	1.6	68	11.90	36.14
10	Stack-10 NCU H200	27-06-2022	70	3.10	33	122	6.43	3	0.5	1.6	46	10.12	31.89
11	Stack-11 CPP HRSG 2	28-06-2022	70	3.30	37	110	6.50	ND	-	-	300	51.17	159.46
12	Stack-12 CPP HRSG 3	28-06-2022	70	3.30	39	121	8.30	ND	-	-	62	16.02	43.58
13	Stack-13 CPP HRSG 4	28-06-2022	70	3.30	34	120	8.30	ND	-	-	135	36.12	71.76
14	Stack-14 CPP HRSG 5	28-06-2022	70	3.30	33	119	8.07	ND	-	-	140	36.47	74.41
15	DB Water-2	28-06-2022	70	3.30	41	137	6.25	0	1.7	6.8	190	29.10	85.04
							Gas	50			350		
							Liquid	1700			450		

Remarks:
1. All values are within limits. Details of Sample are given in the table below.
2. Sample collected within the date of sampling. All gases for primary and secondary air with their own analysis.


(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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Test Report

Issued To M/s Indian Oil Corporation Limited
(Refinery Division)
Panipat Naptha Cracker
Haryana, INDIA

Test Report No.: 202206150118
Test Report Date: 24/06/2022

Sample Particulars

Nature of the Sample & No. of Sample : **Wastewater & One No**
Sample Quantity & Packaging : 1.0 Liter, Pet Bottle
Test Started on : 16/06/2022
Test Completed : 23/06/2022
Method of Sampling : SOP/RO-3
Date of Sampling : 15/06/2022
Sampling Conducted by : Mr. Rishi Pal
Place of Sampling : ETP Outlet-PNC

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	---	7.62	6.5-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	70	100 Max	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	130	250 Max	IS:3025 (P-38)
4	Bio-Chemical Oxygen Demand (3-days at 27°C) (BOD)	mg/L	15	30 Max	IS:3025 (P-44)
5	Phenols (C ₆ H ₅ OH)	mg/L	0.78	1.0 Max	IS:3025 (P-43)
6	Sulphate (S)	mg/L	1.6	2.0 Max	IS:3025 (P-29)
7	Fluoride	mg/L	2.6	5.0 Max	IS:3025 (P-60)
8	Chromium Hexavalent (Cr ^{VI})	mg/L	0.05	0.1Max	IS:3025 (P-52)
9	Cyanide (CN)	mg/L	ND (DL-0.1)	0.20	APHA-23 rd Ed.
10	Total Chromium	mg/L	ND (DL-0.05)	2.0	IS:3025 (P-52)


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(RAVINDER MITTAL)

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LDAR Monitoring Report for IOCL, Panipat

Name of client M/s Indian Oli Corporation Limited
P.O. Panipat Refinery
Panipat-132 140
HARYANA

Name of Contractor NETEL (INDIA) LIMITED
Environment Management Services
W-408, Pipe line Road, Rabale MIDC,
TTC Industrial Area, Navi Mumbai - 400 701

Nature of job LDAR Monitoring Report for IOCL, Panipat

Report Period 3 Months October to December,2021

For NETEL (INDIA) LIMITED

A handwritten signature in black ink, appearing to read 'Jayant Meshram'.

JAYANT MESHAM
SR.MANAGER - EMS OPREATION





LDAR VOC MONITORING REPORT FOR IOCL, PANIPAT

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
VOC QUARTERLY REPORT : OCTOBER TO DECEMBER, 2021
PLANTWISE SUMMARY

Sr.No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	Total Leak (kg/day)
1	ETP	24/11/2021	113	1 to 4	0.021
2	NCU	24/11/2021	834	4 to 26	3.078
3	BUTADINE	24/11/2021	127	26 to 30	0.073
4	BUTEN-1	25/11/2021	195	30 to 35	0.058
5	PP UNIT	25/11/2021	475	35 to 48	0.639
6	MEG	25/11/2021	246	48 to 55	0.709
7	HDPE	25/11/2021	579	55 to 70	0.597
8	LOADING GANTRY	26/11/2021	171	70 to 75	0.057
9	OFF SITE	26/11/2021	220	75 to 81	0.034
10	SWING UNIT	27/11/2021	400	81 to 92	2.622
Total in Kg/day		-	3360	-	7.888
Total in MT/Annum		-	-	-	2.879

Verified by

Surekha Jamdar
Dy. Technical Manager



Checked by

Shradha Kere
Technical Manager



LDAR Monitoring Report for IOCL, Panipat

Name of client M/s Indian Oli Corporation Limited
P.O. Panipat Refinery
Panipat-132 140
HARYANA

Name of Contractor NETEL (INDIA) LIMITED
Environment Management Services
W-408, Pipe line Road, Rabale MIDC,
TTC Industrial Area, Navi Mumbai - 400 701

Nature of job LDAR Monitoring Report for IOCL, Panipat

Report Period 3 Months October to December, 2021

For NETEL (INDIA) LIMITED

f. S. Meshram

Jayant Meshram
Sr. Manager-EMS Operation





LEAK DETECTION AND REPAIR (LDAR) PROGRAM
BENZENE QUARTERLY REPORT : OCTOBER TO DECEMBER, 2021.

PLANTWISE SUMMARY

Sr.No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	Total Leak (kg/day)
1	NCU	24/11/2021	240	1 to 8	0.112
2	LOADING GANTRY	26/11/2021	56	8 to 10	0.029
Total in Kg/day			296		0.141
Total in MT/Annum					0.051

Verified by

Surekha Jamdar
Dy. Technical Manager



Checked by

Shradha Kere
Technical Manager



LDAR (BENZENE) Monitoring Report for IOCL, Panipat Naphtha Cracker

Name of client M/s Indian Oli Corporation Limited
P.O. Panipat Refinery
Panipat-132 140
HARYANA

Name of Contractor NETEL (INDIA) LIMITED
Environment Management Services
W-408, Pipe line Road, Rabale MIDC,
TTC Industrial Area, Navi Mumbai - 400 701

Nature of job LDAR (Benzene) Monitoring Report for IOCL, Panipat Naphtha Cracker

Report Period 3 Months from January 2022 to March 2022

For NETEL (INDIA) LIMITED



ANIL SHELKE
GENERAL MANAGER-EMS



LDAR (BENZENE) MONITORING REPORT FOR IOCL, PANIPAT NAPHTHA CRACKER

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
BENZENE QUARTERLY REPORT FROM JANUARY 2022 TO MARCH 2022
PLANTWISE SUMMARY

Sr.No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	Total Leak (kg/day)
1	NCU	29/03/2022	240	1 to 8	0.020
2	LOADING GANTRY	30/03/2022	80	8 to 10	1.014
Total in Kg/day			320		1.034
Total in MT/Annum					0.377

Verified by


Surekha Jamdar
Technical Manager



Checked by



Shradha Kere
Quality Manager

LDAR (VOC) MONITORING REPORT FOR IOCL, PANIPAT NAPHTHA CRACKER

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
VOC QUARTERLY REPORT FROM JANUARY 2022 TO MARCH 2022
PLANTWISE SUMMARY

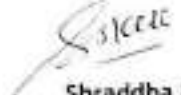
Sr.No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	Total Leak (kg/day)
3	BUTADINE	28/03/2022	127	1 to 4	0.019
2	NCU	29/03/2022	834	4 to 27	2.380
30	SWING UNIT	29/03/2022	407	27 to 38	3.166
4	BUTEN-1	29/03/2022	195	38 to 43	0.015
1	ETP	29/03/2022	85	43 to 45	0.010
9	OFF SITE	29/03/2022	220	45 to 51	0.028
7	HDPE	30/03/2022	579	51 to 67	0.050
8	LOADING GANTRY	30/03/2022	171	67 to 72	0.032
5	PP UNIT	31/03/2022	475	72 to 85	0.035
6	MEG	31/03/2022	246	85 to 91	0.046
Total in Kg/day			3339	-	2.110
Total in MT/Annum			-	-	-

Verified by


Surekha Jamdar
Technical Manager



Checked by


Shradha Kere
Quality Manager