

हिन्दुस्तान पेट्रोलियम कॉर्पोरेशन लिमिटेड

(भारत सरकार संस्थान) रजिस्टर्ड आफिस 17 जमशेदजी टाटा रोड, मुंबई - 400 020



HINDUSTAN PETROLEUM CORPORATION LIMITED

(A GOVERNMENT OF INDIA ENTERPRISE) REGISTERED OFFICE:17 JAMSHEDJI TATA ROAD, MUMBAI-400 020 CIN: L23201MH1952GOI008858

विशाख रिफाइनरी, पोस्ट बाक्स नं.15, विशाखपट्नम - 530 011 (आंध्रप्रदेश), फोन - 2895000, 2895100 VISAKH REFINERY, POST BOX NO.15, VISAKHAPATNAM-530 011 (A.P.), PHONES : 2895000, 2895100

Ref: Project-Process/22/VRMP/001

25th May, 2022

To,
The Regional Officer,
Integrated Regional Office (IRO), Vijayawada,
Ministry of Environment, Forest and Climate Change
Green House Complex, Gopalareddy Road,
Vijayawada- 520010, Andhra Pradesh.

Sir,

Subject: Expansion of **Visakh Refinery** (from 8.33 MMTPA to 15 MMTPA) at Village Malkapuram, District Visakhapatnam, Andhra Pradesh by M/s HPCL- Environmental Clearance F.No. J-11011/63/2013-IA II (I) dated 11th February 2016-Reg.

As per subject Environmental Clearance, HPCL is supposed to send six monthly compliance report for the ongoing project activities.

Please find attached herewith Six monthly compliance report of subject Environmental Clearance for the period 1st October, 2021 to 31st March, 2022 for the Visakh Refinery Modernization Project (VRMP).

Very truly yours,

Baljeet Singh DGM- Projects

Edged Swm.

Encl:

- 1) Six monthly VRMP-EC compliance report
- 2) Earlier Projects EC compliance reports (Annexure -1)
- 3) Stack Gas Emission Analysis reports (Annexure-2)
- 4) Ambient Air Quality reports (Annexure-3)
- 5) Ground water Analysis reports (Annexure-4)
- 6) Noise Level reports (Annexure-5)

Compliance of Environmental Clearance conditions for the period 1st October 2021 to 31st March 2022.

Project: Expansion of Visakh Refinery from 8.33 to 15.0 MMTPA at Village Malkapuram, Tehsil Visakhapatnam (Urban), District Visakhapatnam, Andhra Pradesh by M/s HPCL

Reference No.: F. No. J-11011/63/2013-IA-II(I) dated Feb 11, 2016 by Ministry of Environment, Forests and Climate Change, GOI

A. SPECIFIC CONDIITONS

S.No.	Particulars	Compliance Status	
i.	Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-1A 11(1) dated 30 th May, 1995, F. No. J-11011/88/96- IA 11 (1) dated 10 th April, 1997, J11013/55/2003- IA 11 (I) dated 3 rd February, 2004 and J-11011/66/2007-IA 11 (I) dated 7 th March, 2008 and J-11011/408/2009-IA 11 (1) dated 2 nd September, 2009 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Chennai.	All conditions stipulated in various ECs mentioned are being complied a the compliance status of earlier ECs is being submitted to MoEF & CC on monthly basis. The compliance status reports are attached as Annexure -1	
ii.	M/s HPCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18 th March, 2008	HPCL-Visakh Refinery is complying with the new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18.03.2008.	
iii.	Continuous on-line stack monitoring for SO ₂ . NOx and CO of all the stacks shall be carried out. Low NOx burners shall be installed.	Being complied. On-line stack monitoring facilities considered for all new VRMP stacks and Low Nox burners are being installed in Furnaces ETC: December, 2022	
iv.	The process emissions [SO ₂ , NOx, HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired	Being complied with. The only process emissions from units are through stacks of furnaces and boilers for which online stack analyzers are installed for continuous monitoring. Further, stack emission samples are analyzed for the stipulated parameters by MoEF recognized third party laboratory on monthly basis. The	

	efficiency of the pollution control device has been achieved.	values are within the stipulated limits.
		Copies of MoEF recognized third party laboratory analysis reports of stack emissions for the period of Oct-21 to Mar-22 are attached herewith as Annexure-2
V.	Leak Detection and Repair program shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive	Being complied with.
	emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seats 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.	LDAR Program implemented in existing refinery shall be extended to New facilities under VRMP. HC detectors are considered during detail engineering lay out finalization at strategic locations and are being implemented. ETC: December 2022
vi.	SO ₂ emissions after expansion from the plant shall not exceed 11.5 TPD and further efforts shall be made for reduction of SO2 load through use of low sulphur fuel. Sulphur recovery unit with tail gas treating facilities having 99.9 % efficiency shall be provided.	Currently being complied with for the existing refinery by ensuring use of low Sulphur fuels (LSHS, desulphurized fuel gas and naphtha), operation of TGTUs in SRUs and Flue Gas Desulphurization (FGD) units in FCCUs.
		Post expansion also the SO ₂ emission limit will be complied.
		Low Sulphur fuel has been considered for process heating and steam generation.
		New SRU with 99.9 % efficiency is being implemented.ETC: December 22
vii.	As proposed, 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.	Being complied .Sulphur balance record in line with existing practice will be complied after expansion also.

viii.	Ambient air quality monitoring stations, [PM ₁₀ , PM ₂₋₅ , SO ₂ , NOx, H ₂ S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Andhra Pradesh 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 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 aft quality in the project area.	The Main VRMP units are being located in the Existing refinery boundary which already has ambient monitoring stations. The requirement is being complied with.			
ix.	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.	Being complied with.			
x.	Fresh water requirement from Greater Visakha Municipal Corporation shall not exceed 873 m3/hr after expansion and prior permission shall be obtained from the competent authority. Industrial effluent generation will be 902 m3/hr and treated in the new state-of-the-art Integrated Effluent Treatment Plant (IETP). Treated effluent shall be fully reused/recycled as make-up water for raw water cooling towers. Domestic sewage shall be treated in sewage treatment plant (STP).	The stipulated condition for fresh water is being complied, as additional water from GVMC is STP water. New State of the art IETP is being installed. ETC: December 2022.			
xi.	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.				
xii.	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, Regional Office of MoEF&CC and in the Company's website.				
xiii.	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Being complied with. Oil catchers are being planned to construct under VRMP as follows: 1) Oil catcher at west side of syphon area in 23 acres 2) Oil catcher at east side of syphon area in 23 acres 3) Oil catcher at east of RUF area			

		Oil catcher at South west corner of ATP area		
		5) Oil separator at South East corner of Old BOT area		
xiv.	Oily sludge shall be disposed off into Coker. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional	Coker Unit is not considered in expansion and also not available in existing refinery.		
	Office and CPCB.	Oily sludge is being disposed off as per PCB guidelines.		
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.	Being complied with.		
xvi.	The membership of common TSDF should be obtained for the disposal of	Being complied with.		
	hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Bhopal. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorized recyclers/re-processors.	Membership of common TSDF is available for the existing refinery. The hazardous waste is being sent to CPCB authorized TSDF site namely Coastal Waste Management Project located at Parwada, Vishakhapatnam. Spent catalysts are being disposed to recyclers/re-processers or TSDF.		
xvii.	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	Being complied with.		
xviii.	Acoustic enclosure / silencer shall be installed wherever it is possible.	Being complied with.		
xix.	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Being complied with. Regular health checkups of all the employees in refinery are carried out and the records are maintained by Occupational he services department.		
XX.	The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase. 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.	Being complied with.		
		Proper Barricading of the project sites is being done from operating process units during construction phase. Hydrocarbon detectors are provided along the barricading to detect any hydrocarbon in vicinity of construction area. Blast proof control rooms arrangements being followed post expansion also.		

xxi.	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	Being complied with.		
xxii.	All issues raised during public hearing/consultation shall be satisfactorily implemented and adequate budget provision should be made accordingly.	Budget provisions made and are being implemented.		
xxiii.	Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.	Being complied with.		
xxiv.	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented	Being complied with.		
XXV.	As proposed, 60 Crore ₹ shall be earmarked towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Chennai. Implementation of such program shall be ensured accordingly in a time bound manner.	 Being complied with. The ESR amount committed so far is 43.58 Cr ₹. The details of activities carried out during this period are as follows: Procurement of Push Carts, House Hold Dustbins 10lts (Small), Pet Bottles Crushing Machines and Try Bins (Wet, Dry Hazardous Waste) being carried out by Greater Visakhapatnam Municipal Corporation (GVMC) under "Swachh Bharat Mission – 2020" and also during COVID-19 period for total value of 50,30,000 INR. Financial assistance of 37, 30,000 INR for Renovation of existing Infrastructure of Visakha Vimala Vidyalayam, BC Road, Pedagantyada and providing 10 Nos. Smart Class Rooms to 2 Nos. Schools viz. Visakha Vimala Vidyalayam, BC Road, Pedagantyada and Visakha Vimala Vidyalayam, Ukkunagaram (5 Smart Class rooms to each school) located in Visakhapatnam. Financial support of 26,43,200 INR for educating & Empowering Children Through after school guidance at St. Ann's College for women, Malkapuram Providing 3 Nos container Toilet Blocks and one unit of Toilet block i.e. Four Urinals and Two Toilet blocks to GVMC, Visakhapatnam 		
		Providing Modernization of Garbage Transfer Solution at		

		Mudasasrlova Visakhapatnam under VRMP to GVMC	
		Construction of Conference/Meeting/Audition Hall at MHRM Department Ground Floor, Andhra University, Visakhapatnam	
		 Provision of 4 Nos. Mahindra Bolero Vehicles, 2 Nos Mahindra Supro LED Mobile Vans, 2 Nos. Video Walls, One Two Wheeler and One UV Water Plant to the Police Commissionerate, Visakhapatnam 	
		 Financial support for construction of Mandal Praja Parishad Building at Bheemili Constituency area viz. Bheemunipatnam in Visakhapatnam District, Andhra Pradesh. 	
		The amount spent for the ESR activities so far is 35.4 Cr ₹.	
xxvi.	Provision shall be made for the housing of construction labor 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.	Project site is within an operating refinery. Sanitary and medical facilities are made available within the Refinery site. Construction labor are from nearby locations.	
В.	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.	Being complied with.	
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 alterations 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.	Being complied with.	
iii.	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc.	Being complied with.	

	must be obtained, wherever applicable.				
iv.	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	Being complied with in the existing refinery and post expansion. Noise levels monitored by MoEF recognized third party laboratory around the plant area are within the stipulated limits in the refinery. Measures like usage of earmuffs, display of signage boards, restricting the duration of exposure etc., are followed in few plant areas where noise levels are higher than the stipulated limits.			
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.	In existing refinery, a separate Environment management cell is already available they are part of Technical Services Department looks after the environmental monitoring functions. The same division will look after VRM project facilities also after commissioning.			
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.	Fund provision has been envisaged for capital / recurring cost towards environment pollution control measures.			
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.	Being complied with.			
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.	Being complied with.			
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; PM ₁₀ , PM ₂₅ , S0 ₂ , NOx, HC (Methane & Non-methane), VOCs (ambient	Being complied with.			

	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.	
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 I CPCB / SPCB shall monitor the stipulated conditions.	Being complied with.
xi.	The environmental statement for each financial year ending 31' 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 the MOEF by e-mail.	
xii.	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local 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 Regional office.	Complied. Advertisement regarding grant of Environmental Clearance was published on Feb 17, 2016 (i.e. within seven days from the date of issue of the clearance letter Feb 11, 2016) in "Eenadu" and "The Hindu". Copy of the same forwarded to the MoEFCC Regional office, Chennai vide letter dated May 26, 2016.
xiii.	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Project approved vide HPCL board Meeting held on July 20, 2016. The Land development of Project unit site started in July 2016.

S.No	EC Conditions	Compliance by HPCL-VR		
	A. Special Conditions:			
1	M/s HPCL shall comply with the stipulations made in the environmental clearance accorded vide Ministry's vide letter No. J-11013/55/2003-IA II (I), dated February 03, 2004 for Clean Fuels Project and expansion from 7.5 to 10.0 MMTPA	Status of compliance to the conditions stipulated in all the ECs is being submitted to MoEF Office. The same has been uploaded on HPCL's corporate website.		
2	M/s HPCL shall comply with new standards/ norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18 th March 2008.	HPCL-Visakh Refinery is complying with the new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E dated 18.03.2008. The compliance is complete as of date and ongoing.		
3	The project authorities shall submit a feasible plan which will be followed to ensure that SO ₂ emission from the refinery does not exceed the stipulated figure of 11.5 TPD at any time	 Being complied with. The measures adopted to contain the SO₂ emissions are as below: A sulphur recovery unit of 300 TPD capacity along with the tail Gas treatment unit designed to achieve >99.5% sulphur recovery. Installation of additional FG ATU to sweeten the fuel gas for firing in the process furnaces and boilers. Usage of treated Naptha in CPP. Installation of FGD unit. The average SO₂ emissions for the period of Oct-2021 to Mar-2022 is 7.4 TPD and are within the stipulated limit of 11.5 TPD. 		
4	The company shall undertake .measures for control of dust emission during construction and traffic congestion	Various mitigation measures like water sprinkling on the roads at project sites, higher barricades around project sites, regulating the traffic near civil works of project activities, usage of RMC (Ready Mix Concrete) material etc. were taken		

S.No	EC Conditions	Compliance by HPCL-VR		
		up regularly to control dust emissions. The project civil jobs are nearing completion.		
5	Efforts shall be made to use gas as a fuel in the furnaces to the maximum extent possible	Fuel gas distribution system has been designed to achieve this objective and also strict operational instructions are in place to maximize fuel gas consumption.		
6	The process emissions (SO2, NOx, HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the AP State Pollution Control Board from time to time. At no time, the emission levels should go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved	is being done regularly in refinery premises. Onliconnectivity of stack emissions analyzers is established with CPCB and APPCB servers. Further, stack emissions monitoring is being carried out by MoEF recognized laboratory on monthly basis.		
7	Ambient air quality monitoring stations, (SPM, SO ₂ , NON, H ₂ S, Mercaptan, NMHC and Benzene) should be set up in the Refinery complex in consultation with SPCB, 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. Continuous online stack monitoring equipment should be installed for measurement of SO ₂ , NO, CO and CO ₂ . Low NO _x burners should be installed with online analyzers	Based on predominant wind direction, three CAAM stations are installed in the refinery to monitor ambient air quality parameters w.r.t SO ₂ , NOx, PM10, PM2.5, CO, Benzene, Ammonia and Ozone. Online connectivity of these ambient air quality parameters is established with CPCB and APPCB. Further, manual monitoring of ambient air quality is being		

S.No	EC Conditions	Compliance by HPCL-VR		
		Online connectivity of stack emission analyzers established with CPCB an APPCB servers. Low NOx burners are installed for all the major furnaces.		
The proponent shall upload the status of complian stipulated EC conditions, including monitored data website and shall update the same periodically. simultaneously be sent to the Regional Office of Norespective Zonal Office of CPCB and the SPCB. The pollutant namely; SPM, RSPM, SO7, NOx (Ambient well as stack emissions) or critical sectoral parameters for the project shall be monitored and displayed at the colocation near the main gate of the Company in the publication.		Status of compliance to the conditions stipulated in all the ECs is being submitted to MoEF Office. The same has been uploaded on HPCL's corporate website.		
9	Monitoring of fugitive emissions should be carried out as per the guidelines of CPCB by fugitive emission detectors and reports should be submitted to the Ministry's Regional Office at Bangalore. For control of fugitive emission all unsaturated hydrocarbon will be routed to the flare system and the flare system should be designed for smoke less burning	Leak Detection and Repair (LDAR) survey is being carried out regularly by MoEF recognized third party laboratory for monitoring fugitive emissions. The existing hydrocarbon flare system is designed for smokeless flaring.		
10	Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage should also be provided at strategic locations. The company should use low sulphur fuel to minimize SO2 emission. Sulphur recovery units should have efficiency of 99.5 %. Leak Detection and Repair programme should be implemented to control HC/VOC emissions. Work zone monitoring should be carried out near the storage tanks besides monitoring of HCs/VOCs in the work zone	Hydro carbon detectors are provided in the plant and storage tank areas. Leak Detection And Repair (LDAR) program is in place for the existing refinery. Crude and light hydrocarbon products are stored in floating roof tanks with secondary seals to minimize vapor space and hence hydrocarbon emissions. Sulphur Recovery Units (SRU) with >99% Sulphur recovery efficiency are installed in the refinery.		

S.No	EC Conditions	Complianc	Compliance by HPCL-VR		
11	The waste water should be treated in the waste water treatment plant and the treated effluent should meet the prescribed standards. Efforts should be made to recycle the treated effluent	There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex			
	to achieve zero discharge	Plant Name	Design Capacity	Final disposal	
		ETP -1	135 m ³ /hr	To sea through open channel	
		ETP-II	325 m ³ /hr	To ETP IV	
		ETP-IV	180 m ³ /hr	To sea through open channel	
		Stripped sour water from process units is bei the maximum possible extent with the available use as wash water. A new Integrated Effluent Treatment Plant (I implemented under current refinery expansion)		tent with the available systems for the Treatment Plant (IETP) is being	
			e recycled/reu		
12	The project authorities must strictly comply with the rules and regulation with regard to handling and disposal of Hazardous Wastes (Management, Handling and Trans Boundary Movement) Rules, 1989/ 2003/ 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/ disposal of hazardous wastes	Hazardous wastes are being handled, stored and disposed off in accordance with the Hazardous & Other Waste Management Rules, 2016.			
13	The company should strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) for the oil refineries	Complied.			

S.No	EC Conditions	Compliance by HPCL-VR
14	The Company should take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout	The measures adopted by the PP to prevent fire hazards are as below:-
	drums should be installed to minimize gaseous emissions during flaring	 Hydrocarbon detectors are provided. Elaborative fire water network & other equipment exist inside refinery to handle fire hazards. Overhead flare stack with KO drums is provided.
		The following systems are in place: •Oil Spill response plan (inside refinery) along with necessary equipment is in place. •Operational control procedures / Departmental standing Instructions (DSIs) / Plant Daily Instructions (PDIs)
15	To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material should be in place	All the facilities are designed in line with OISD (Oil Industry Safety Directorate) standards. Necessary infrastructure is in place to effectively handle any emergency.
16	Onsite and offsite DMP shall be updated to cover the additional facilities and the updated plans shall be implemented	ERDMP (Emergency Response and Disaster Management Plan) which is certified by PNGRB (Petroleum and Natural Gas Regulatory Board) approved third party is in place.
17	Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act	Regular health check-ups of all the employees in the refinery are being carried out and the records are maintained in the Occupational Health Centre.
18	Greenbelt should be developed to mitigate the effect of fugitive emission all around the plant in a minimum 33% plant area in consultation with DFO as per CPCB guidelines	Existing green belt area is 45 acres. Tree plantation on a massive scale has been carried out in various locations of Visakhapatnam under "Green Visakha" program.

S.No	EC Conditions	Compliance by HPCL-VR
		HPCL-VR has planted 6,50,000 plantations covering an area of approximately 700 acers of Plantation, and is complying with the CFE condition. Approximately Rs.26 crores were incurred for green belt development during 2011-2021 by HPCL-VR.
		In addition to this, HPCL-VR has taken up plantation of saplings under Vanam Manam program initiated by Andhra Pradesh State Government and completed the target plantation of 10,000 saplings in Jan 2019.
19	The Company should undertake measures for rain water harvesting to recharge the ground water and minimize fresh water consumption	Rain water harvesting facilities for the Administrative buildings (Blocks-A and C) and for control room & sub stations of DHT project are in place.
20	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, mobile STP, Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Various developmental activities such as construction of toilet blocks, supply of furniture, supply of computers, scholarships to students, health camps, supply of diagnostic machines etc., are taken up in schools & hospitals in the region under Corporate Social Responsibility (CSR) program.
	B. GENERAL CONDITIONS	
1	The project authorities must-strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statuary body	The Refinery is currently complying with the conditions stipulated in CFO No:APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 and task force directives which were identified by APPCB vide letter no.702/APPCB/UH-II/TF/VSP/2020 dated 19.03.2020.
2	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment	Noted and is complied.

S.No	EC Conditions	Compliance by HPCL-VR
	and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry	
3	At no time, the emissions shall go beyond the prescribed standards. In the event of failure of any pollution control system, the respective facilities should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done	Process emissions are through stack flue gases only. Online connectivity of stack emission analyzers established with CPCB an APPCB servers. Analysis of stack flue gases is being carried out by MoEF recognized third party laboratory on monthly basis and being submitted to APPCB as per the requirement. Process furnaces, boilers and gas turbines are provided with tall stacks (about 60 m) for better dispersion of flue gases.
4	Waste water shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB	There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex: Plant
5	The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) 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)	Noise monitoring is carried out on monthly basis at various locations in the refinery. The noise levels are within the standards for most of the locations. Measures like usage of earmuffs, display of signage boards, restricting the duration of exposure etc., are followed for high noise level areas.

S.No	EC Conditions	Compliance by HPCL-VR
6	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 commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans.will be prepared and implemented	Necessary approvals from Chief Inspector of Factories and Chief Controller of Explosives etc are in place and complying with the MSIHC Rules,1989. ERDMP (Emergency Response and Disaster Management Plan) which is certified by PNGRB (Petroleum and Natural Gas Regulatory Board) approved third party is in place.
7	The project authorities will provide adequate funds as non-recurring and recurring expenditure 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 should not be diverted for any other purposes	Complied.
8	The company shall develop rain water harvesting structures to harvest the run off water for recharge of ground water	Rain water harvesting facilities for the Administrative buildings (Blocks-A and C) and for control room & sub stations of DHT project are in place.
9	The stipulated conditions will be monitored by the concerned Regional Office of this Ministry / Central Pollution Control Board! State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company	Complied
10	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both on hard copies as well as by email) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB	Being complied.
11	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation,	The copy of clearance letter has been sent to the concerned Panchayat, Zilla Parishad / Municipal

S.No	EC Conditions	Compliance by HPCL-VR
	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 put up on the website of the Company by the proponent	Corporation, Urban Local Body and the Local NGO. Clearance letter of the DHT project is uploaded on HPCL website.
12	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 of Environment 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 concerned Regional office of this Ministry	The advertisement was published in the newspapers; The Hindu, Deccan Chronicle and Sakshi on 18.09.2009 and copies were submitted to the RO, MoEF&CC.
13	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the Company alongwith the status of compliance of EC conditions and shall also be sent to the respective regional Office of the MoEF by e-mail	Complied. The latest Environmental statement for 2020-21 was submitted to APPCB vide letter dated 16.09.2021.
14	A separate environment management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive	Under Technical Services Department, Process Safety & Environment (PS&E) is a separate division, which looks after the Environmental and Process safety functions. This division reports to Head — Technical who in turn reports to Executive Director of the refinery.

S.No	EC Conditions	Compliance by HPCL-VR
		Refinery has a dedicated quality control laboratory for analysis of environmental parameters under the supervision of competent technical personnel.
15	The project authorities shall inform the Regional Office as well	Complied
	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	
16	The Ministry may revoke or suspend the clearance, if	Noted
	implementation of any of the above conditions is not satisfactory	
17	The Ministry reserves the right to stipulate additional conditions	Noted
	if found necessary. The company will implement these conditions	
	in a time bound manner	
18	Any appeal against this environmental clearance shall lie with the	Noted
	National Environment Appellate Authority, Second Floor,	
	Trikoot-I, Bhikaji Cama Place, New Delhi-110066, if preferred	
	within a period of 30 days as prescribed under Section 11 of the	
	National Environment Appellate Authority Act, 1997	
19	The above conditions will be enforced, inter-alia under the	Noted.
	provisions of the Water (Prevention & Control of Pollution) Act,	
	1974, the Air (Prevention & Control of Pollution) Act, 1981, the	
	Environment (Protection) Act, 1986, the Public Liability	
	Insurance Act, 1991, Hazardous Waste (Management, Handling	
	and Transboundary Movement) Rules, 1989/ 2003/ 2008 and	
	Manufacture, Storage and Import of Hazardous Chemicals Rules,	
	1989 along with their amendments and rules	

EC Compliance for No.J-11012/55/2003-IA-(I) dated 03.02.2004

S.No	EC Conditions	Compliance by HPCL-VR
1	The company shall comply with all the conditions stipulated by this Ministry vide its letter no. J-11011/88/96-IA-11 (I) dated 10th April, 1997.	Complied.
2	Specific limits stipulated for SO ₂ (11.5 TPD), HC (2.5 TPD), SPM (1.1 TPD) and NOx (6.5 TPD) at para 2 should be strictly complied.	Complied. Average emission loads for the period Oct'21 to Mar'22 are provided below: Emissions TPD
		SO ₂ 7.43 SPM 0.80 HC 0.81 NOx 3.04
3	The fresh water consumption should be pegged at 523 m³/hr after the proposed modernization. The additional water required, if any, should be met through recycling/reuse of treated effluent.	Fresh water consumption is within the stipulated limit of 812 m ³ /hr as per the latest CFO dated 09.03.2021.
		A new Integrated Effluent Treatment Plant (IETP) is being implemented under current refinery expansion project (VRMP). Post implementation of this IETP, the treated water will be recycled/reused fully.
4	The industry shall implement all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) regarding air pollution, waste water and solid waste management and oil spill response facilities at Coastal refineries.	Noted and is complied.
5	All the recommendations made in the Risk Analysis Report should be complied with during design, construction and operation stages to contain the risk within the plant boundary.	The Risk Analysis Report relates to a specific project and the same has been implemented as required

S.No	EC Conditions	Compliance by HPCL-VR
6	No further modernization of the project should be carried out without prior permission of the Ministry.	Noted and is complied.
7	Implementation of the project vis-à-vis Environmental management / risk mitigation measures should be reported to the Ministry / Regional Office / State Pollution Control Board regularly on a six-monthly basis.	Noted and is complied.

S.No	EC Conditions	Compliance by HPCL-VR
1.	All the safety and security systems provided in Risk Analysis Report for the Project shall be implemented. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the Environmental Management Plan and Risk Analysis Report submitted to the Ministry vide letter no. CEE/07/MLVR/056 dated 19th October 2007.	The Risk Analysis Report relates to a specific project and the same has been implemented as required
2.	There shall be no solid waste or release of pollutants.	There is no solid waste generation from the LPG / Propylene Mounded Storage facility.
3.	Regular Ambient Air Quality Monitoring shall be carried out for VOC, HC and LPG, besides other parameters in the Work Zone Area and ambient air in and around the Plant. The location and results of existing monitoring stations shall be reviewed in consultation with the concerned State Pollution Control Board based on the occurrence of maximum ground level concentration and downwind direction of wind. Additional Stations shall be set up, if required. It will be ensured that at least one monitoring station is set up in upwind & in down-wind direction along with those in other directions. Data shall be submitted to MoEF, CPCB and TNPCB.	Based on predominant wind direction, three CAAM stations are installed in the refinery to monitor ambient air quality parameters w.r.t SO2, NOx, PM10, PM2.5, CO, Benzene, Ammonia and Ozone. Online connectivity of these ambient air quality parameters is established with CPCB and APPCB. Further, manual monitoring of ambient air quality is being carried out by MoEF recognized third party laboratory on monthly basis at the CAAMS locations.
4.	Fugitive emissions in the work zone environment of storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the State Pollution control Boards/Central Pollution Control Board.	Hydrocarbon detectors have been provided in the plant and storage tank areas. Leak Detection And Repair (LDAR) program is in place for the existing refinery where in LPG mounded bullets are also covered.
5.	There shall be no increase in the pollution load for any parameter from the expansion project.	Complied. There is no increase in pollution due to Mounded storage Project.
6.	There shall be no additional water requirement for the process except service water of 5,000 KL for commissioning and testing provisions for appropriate storage and treatment for firefighting water shall be provided.	There is no additional water consumption due to Mounted storage Project and adequate firefighting facilities are in place.

S.No	EC Conditions	Compliance by HPCL-VR
7.	Noise level will be within the approved limits of 80 dB (A). The practice of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hr time weighted average of 90 db (A).	Noise monitoring is carried out on monthly basis at various locations in the refinery. The noise levels are within the standards for most of the locations. Measures like usage of earmuffs, display of signage boards, restricting the duration of exposure etc., are followed for high noise level areas.
8.	Green belt shall be provided to mitigate the effects of fugitive emissions all around the plant in a minimum of 33% of the plant area in consultation with DFO as per CPCB guidelines.	Existing green belt area is 45 acres. Tree plantation on a massive scale has been carried out in various locations of Visakhapatnam under "Green Visakha" program. HPCL-VR has planted 6,50,000 plantations covering an area of approximately 700 acers of Plantation, and is complying with the CFE condition. Approximately Rs.26 crores were incurred for green belt development during 2011-2021 by HPCL-VR. In addition to this, HPCL-VR has taken up plantation of saplings under Vanam Manam program initiated by Andhra Pradesh State Government and completed the target plantation of 10,000
9.	The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	saplings in Jan 2019. Rainwater harvesting facility provided for the Mounded storage facility.
10	The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, as amended in 2000 and the Public Liability Insurance Act for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commissioning of the expansion project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	The approval from Chief Controller of Explosives obtained for the Mounded storage facility. Updated Emergency Response and Disaster Management Plan (ERDMP) is in place to meet any emergency situation. Corporation has a comprehensive valid PLI policy No. 111700/48/2022/9 dated 31.03.2021. Visakh Refinery is also included in the policy.

S.No	EC Conditions	Compliance by HPCL-VR
	General Conditions:	
1.	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government.	The Refinery is currently complying with the conditions stipulated in CFO No:APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 and task force directives which were identified by APPCB vide letter no.702/APPCB/UH-II/TF/VSP/2020 dated 19.03.2020.
2.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Noted and is complied.
3.	The project authorities shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended from time to time. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. shall be obtained. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989.	Necessary approvals from Chief Inspector of Factories and Chief Controller of Explosives etc are in place and complying with the MSIHC Rules, 1989 and Motor Vehicle rules.
4.	On-site and Off-site emergency preparedness plans shall be prepared. Approval from the nodal agency shall be obtained before commissioning the project.	ERDMP (Emergency Response and Disaster Management Plan) which is certified by PNGRB (Petroleum and Natural Gas Regulatory Board) approved third party is in place.
5.	The overall noise levels in and around the plant area shall be limited within the prescribed standards 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).	Noise monitoring is carried out on monthly basis at various locations in the refinery. The noise levels are within the standards for most of the locations. Measures like usage of earmuffs, display of signage boards, restricting the duration of exposure etc., are followed for high noise level areas.
6.	Proper House Keeping and adequate occupational health programs shall be taken up. Regular Occupational Health Surveillance Programme for the relevant diseases shall be carried out and the records shall be maintained properly for at least 10 years. Sufficient preventive measures shall be adopted to avoid direct exposure to emission and other Hydrocarbons etc.	Housekeeping in the Refinery is ensured on continuous basis. Regular health check-ups of all the employees in the refinery are being carried out and the records are maintained in the Occupational Health Centre.

S.No	EC Conditions	Compliance by HPCL-VR
		Leak Detection And Repair (LDAR) program is a continuous activity, which is taken up for identification of the sources of fugitive emissions and control of the leaks through inspection, repair and maintenance schedules.
7.	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 on safe handling of hazardous chemicals is imparted to refinery employees as part of Emergency Preparedness training program. Regular health check-ups of all the employees in the refinery are being carried out and the records are maintained in the Occupational Health Centre.
8.	Usage of PPEs by all employees / workers shall be ensured.	Usage of PPE is mandatory for all employees / workers in operating areas.
9.	A separate environment management cell with full fledge laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	Under Technical Services Department, Process Safety & Environment (PS&E) is a separate division, which looks after the Environmental and Process safety functions. This division reports to Head – Technical who in turn reports to
		Executive Director of the refinery.
		Refinery has a dedicated quality control laboratory for analysis of environmental parameters.
10	The project authorities will provide adequate funds both recurring and non-recurring 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 should not be diverted for any other purposes.	Complied.
11	The project proponent shall have a scheme for social upliftment in the surrounding villages with reference to contribution in road	Various developmental activities such as construction of toilet blocks, supply of furniture, supply of computers, scholarships to

S.No	EC Conditions	Compliance by HPCL-VR
	construction, education of health centers, sanitation facilities, drinking water supply, community awareness and employment to local people whenever and wherever possible both for technical and non-technical jobs. CSR activities will be undertaken by involving local villages and administration.	students, health camps, supply of diagnostic machines, etc., are taken up in schools & hospitals in the region under Corporate Social Responsibility (CSR) program
12	The implementation of the project vis-a-vis environmental action plans shall be monitored by concerned Regional Office of the Ministry/States Pollution Control Boards/Central Pollution Control Board. A six monthly compliance status report shall be submitted to monitoring agencies and displayed on the Website of the Company.	Complied.
13	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 of Environment 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 lease 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 concerned Regional office of this Ministry.	Complied
14	The date of Financial Closure and final approval of the project by the concerned authorities and the date of commencing the land development work as well as the commissioning of the project will be informed to the Ministry and its Regional Office.	Complied
15	The Ministry may revoke or suspend the clearance if implementation of any of the above conditions is not satisfactory.	Noted
16	The Ministry reserves the right to stipulate additional conditions if found necessary. The company will implement these conditions in a time bound manner.	Noted
17	The above conditions will be enforced inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act	Noted

S.No	EC Conditions	Compliance by HPCL-VR
	1974, the Air (Prevention & Control of Pollution) Act, 1981, the	
	Environment (Protection) Act 1986, Public Liability Insurance Act	
	1991, Hazardous Waste (Management & Handling) Rules,	
	1989/2003 and Manufacture, Storage and Import of Hazardous	
	Chemicals 1989/2000 along with their amendments and rules.	

Compliance to EC No.J-11011/88/96-IA-II (I) dated 10.04.1997

S.No	EC Conditions	Compliance by HPCL-VR
1	The project authority must-strictly adhere to the stipulations laid down by the Andhra Pradesh State Pollution Control Board and the State Govt	The Refinery is currently complying with the conditions stipulated in CFO No:APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 and task force directives which were identified by APPCB vide letter no.702/APPCB/UH-II/TF/VSP/2020 dated 19.03.2020.
2	No expansion or modernization of the plant should be carried out without prior approval of the Ministry of Environment and Forests	Noted and is complied.
3	The total SO ₂ emission from Visakh Refinery including DHDS project should not exceed the norm of 11.5 TPD.	The average SO2 emissions for the period of Oct-2021 to March-2022 is 7.4 TPD and are within the stipulated limit of 11.5 TPD.
4	The existing ETP should be adequately augmented (if required) to accommodate the additional effluent from the DHDS project before commissioning project so as ensure the treated effluent meets the MINAS	There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex: Plant
5	Time bound Action Plan for disposal of Oil Sludge/recovery of oil and design details of the solid waste disposal pit should be furnished to the Ministry within a period of 3 months	Oily sludge in the refinery is being processed for recovery of oil. The recovered oil is reprocessed. The residual oily sludge is bioremediated by Oil zapper bacteria of M/s OTBL.
6	SRU having an efficiency of more than 99% should be installed	Sulphur Recovery Units (SRU) with >99% Sulphur recovery efficiency are installed in the refinery.

S.No	EC Conditions	Compliance by HPCL-VR
7	The ground water quality should be regularly monitored and report submitted to the Ministry every six months.	Ground water quality monitoring is being carried out by MoEF recognized third party laboratory once in every six months and the reports are provided to statutory authorities during inspection.
8	Time Bound Action Plan to implement the conditions stipulated by the Ministry while according environmental clearance for the refinery complex should be submitted to the Ministry within 3 months along with details of funds allocated for implementing the above.	Complied

S.No	EC Conditions	Compliance by HPCL-VR
1	The project authority must strictly adhere to the stipulations made by the A.P. Pollution Control board and the State Government.	The Refinery is currently complying with the conditions stipulated in CFO No:APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 and task force directives which were identified by APPCB vide letter no.702/APPCB/UH-II/TF/VSP/2020 dated 19.03.2020.
2	Any expansion of the plant, either with the existing product mix or new product(s) or storage facilities etc. /can be taken up only with the prior proposal of this Ministry.	Noted and is complied.
3	The total emission of SO2 from the entire refinery should be brought down from 9 TPD to 7.5 TPD in a phased manner and action plan for the same should be submitted to the Ministry. Until the SO2 of 7.5 TPD is achieved in the near future, the total emission of SO2 would not exceed the earlier prescribed limit of 9 TPD.	Subsequent to industry expansion, the SO ₂ emission limit was revised to 11.5 TPD vide EC J11011/88/96-IA-II (I) dated 10.04.97. The same limit is stipulated in the latest EC dated 11.02.2016. The average SO ₂ emissions for the period of Oct-2021 to March-2022 is 7.4 TPD and are within the stipulated limit of 11.5 TPD.
4	The gaseous emissions from various process units should conform to the standards prescribed by the concerned authorities/from time to time. At no time, the emission level should go beyond the stipulated standards. In the event of failure of any pollution control system(s) adopted by the unit, the respective unit should be shut down immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.	Monitoring of SO2, NOx, CO, PM, HC, VOCs and Benzene is being done regularly in refinery premises. Online connectivity of stack emissions analyzers is established with CPCB and APPCB servers. Further, stack emission monitoring is being carried out by MoEF recognized laboratory on monthly basis. VOCs and Benzene within refinery premises are being monitored periodically and controlled as part of LDAR survey carried out by MoEF recognized third party

S.No	EC Conditions	Compliance by HPCL-VR
5	Sulphur recovery units with more than 99% efficiency for sulphur recovery should be provided.	Sulphur Recovery Units (SRU) with >99% Sulphur recovery efficiency are installed in the refinery.
6	Low NOx burners to avoid excessive formulation of NOx should he provided.	All major furnaces are provided with low NOx burners.
7	Adequate ambient air quality monitoring stations should be set up in the refinery area in the down wind direction as well as where maximum ground level concentrations of SO ₂ , NOx, HC and SPM are anticipated. The monitoring network should be decided based on the modelling exercise to represent the short term GLCs. A mobile van with adequate facilities to monitor ambient air quality outside the refinery premises should also be planned.	Based on predominant wind direction, three CAAM stations are installed in the refinery to monitor ambient air quality parameters w.r.t SO2, NOx, PM10, PM2.5, CO, Benzene, Ammonia and Ozone. HPCL-Visakh Refinery is regularly carrying out Ambient air quality monitoring outside the refinery (Malkapuram) thru a MOEF recognized third party Laboratory once in a month.
8	Fugitive emissions of HC from storage tanks, crude oil tanks etc., should be minimised by adopting necessary measures.	Crude and light hydrocarbon products are stored in floating roof tanks with secondary seals to minimize vapor space and hence hydrocarbon emissions from storage tanks are minimized. Hydrocarbon detectors are provided in the plant and storage tank areas.
9	Adequate facilities for monitoring the fugitive emissions should be planned.	Leak Detection and Repair (LDAR) survey is being carried out regularly by MoEF recognized third party laboratory for monitoring fugitive emissions.

S.No	EC Conditions	Compliance by HPCL-VR
10	The stacks should be of appropriate design and height and should be attached to pollution control systems wherever necessary. Height of stacks attached to crude oil furnace and waste heat boiler should be increased to the maximum height as permitted by the Civil Aviation Department. Continuous on-line stack monitoring equipment for measurement of SO ₂ & NOx should be installed. The monitored data should be submitted to SPCB every 3 months and every 6 months to the Ministry of Env.& Forest for review.	Process furnaces, boilers and gas turbines are provided with tall stacks (about 60 m) for better dispersion of flue gases. Online connectivity of stack emission analyzers established with CPCB an APPCB servers. Analysis of stack flue gases is being carried out by MoEF recognized third party laboratory on monthly basis and being submitted to APPCB as per the requirement.
11	The existing waste water treatment facilities should be suitably augmented so as to meet the MINAS standards.	There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex: Plant Design Final disposal Name Capacity ETP-1 135 m³/hr To sea through open channel ETP-II 325 m³/hr To ETP IV ETP-IV 180 m³/hr To sea through open channel
12	Recycling/Reuse of the treated effluent to the maximum extent possible should be planned.	Stripped sour water from process units is being recycled to the maximum possible extent with the available systems for use as wash water. In addition, a new Integrated Effluent Treatment Plant (IETP) is being implemented under current refinery expansion project (VRMP). Post implementation of this IETP, the treated water will be recycled/resused fully.

S.No	EC Conditions	Compliance by HPCL-VR
13	Adequate number of influent and effluents quality	Online liquid effluent monitoring facilities are available for pH, TSS, BOD and COD in line with CPCB guidelines and connectivity of these analyzers established with APPCB and CPCB servers.
	monitoring stations have to be planned with adequate facilities especially for the parameters like phenols, sulphides / oil and grease, suspended solids BOD, COD, PH and flow.	Flowmeters are available on sea cooling water supply headers.
		Further, the treated effluent quality is being monitored by MoEF recognized Third Party laboratory on monthly basis.
14	System to recover oil from the oily sludge and incinerator producing the residues should be provided.	Oily sludge in the refinery is being processed for recovery of oil. The recovered oil is reprocessed. The residual oily sludge is bio-remediated by Oil zapper bacteria of M/s OTBL and not incinerated. Hence, incinerator is not required.
15	Hazardous substances and solid wastes should be handled stored and disposed off as per the Hazardous Wastes (Management and Handling) Rules, 1989 of the EPA 1986.	Hazardous wastes are being handled, stored and disposed of in accordance with the Hazardous & Other Waste Management Rules, 2016.
16	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing acoustic hoods, silencers etc. on all the sources of noise generation.	Noise monitoring is carried out on monthly basis at various locations in the refinery. The noise levels are within the standards for most of the locations. Measures like usage of earmuffs, display of signage boards, restricting the duration of exposure etc. are followed for high noise level areas.

S.No	EC Conditions	Compliance by HPCL-VR
17		Existing green belt area is 45 acres. Tree plantation on a massive scale has been carried out in various locations of Visakhapatnam under "Green Visakha" program.
	The density of green belt within the Plant premises should be increased using native plant species in consultation with the local DFO.	HPCL-VR has planted 6,50,000 plantations covering an area of approximately 700 acers of Plantation, and is complying with the CFE condition. Approximately Rs.26 crores were incurred for green belt development during 2011-2021 by HPCL-VR.
		In addition to this, HPCL-VR has taken up plantation of saplings under Vanam Manam program initiated by Andhra Pradesh State Government and completed the target plantation of 10,000 saplings in Jan 2019.
18	Various socio-economic schemes should he initiated by HPCL, so to improve the socio economic environment in the region.	Various developmental activities such as construction of toilet blocks, supply of furniture, supply of computers, scholarships to students, health camps, supply of diagnostic machines etc., are taken up in schools & hospitals in the region under Corporate Social Responsibility (CSR) program.
19	Recommendation made by NEERI in the EMP should be	NEERIs recommendations and action plans were submitted to MoEF&CC. Among the NEERI recommendations, one recommendation couldn't be complied.
	implemented and action plan for implementation of the same should be submitted to the Ministry for review.	Effluent discharge through a single outlet was recommended by NEERI. However, 2 outlets are provided as the refinery is in a low-lying area with respect to MSL. The 2 outlets are joined together outside the boundary of the refinery into a single channel outlet outside the Refinery

S.No	EC Conditions	Compliance by HPCL-VR
20	Necessary approvals from the Chief Explosives directorate, inspector of factories, Fire Safety Inspector etc. should be obtained and copies of approval letters, be made available to this Ministry for the storages and facilities curtaining to highly inflammable materials.	Necessary approvals are in place.
21	The project authority should set up laboratory facilities for collection and analysis of samples under the supervision of competent technical personnel, who will directly report to the Chief Executive.	Refinery has a dedicated quality control laboratory for analysis of environmental parameters under the supervision of competent technical personnel.
22	An Environmental Management Cell should be established with suitably qualified People to carry out various functions and should be set up under the control or senior executive who will report directly to the head of the organization.	Under Technical Services Department, Process Safety & Environment (PS&E) is a separate division, which looks after the Environmental and Process safety functions. This division reports to Head – Technical who in turn reports to Executive Director of the refinery.
23	Medical surveillance of workers should be done regularly to avoid possibility of contracting occupational diseases against the workers engaged in the various plants and record maintained.	Regular health check-ups of all the employees in the refinery are being carried out and the records are maintained in the Occupational Health Centre.
24	The project authorities should carry out a water balance study at the proposed site and submit the report within 12 months.	Water balance study was carried out and the report was submitted to the Ministry.
25	The funds earmarked for the environmental protection measures should not be diverted for other purposes and year wise expenditure should be reported to this ministry.	The funds earmarked for environmental protection measures are being used for the same purpose only and there is no diversion of the funds. The expenditure incurred towards environmental pollution control

S.No	EC Conditions	Compliance by HPCL-VR
		measures is being provided in Environment Statement
		(Form-V) every year.



Industry Name	Hindustan Petrolei	um Corporation Limited							
Address	Visakh Refinery, Malkapu	uram, Visakhapatnam-530 011							
Phone No.	0891-2894825/4818								
Fax No.	0891-2759861	DGM -	DGM - Technical						
Date of Reporting	15th November,2021	Nature of the Sample	Fuel Gases						
Our Ref. No.	Pra/Env/HPCL (Stack 1-26) November, 2021	No. of Samples	26						
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 11255						
Parameters	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H ₂ S, Ni &	V .							

PRAGATHILABS & PRAGATHILABS PRAGAT) PR	AGAT	HI	LA	BS	87	CO	NS	UL	TA	N.	TS	P۱	/ T.	LTD
Pilot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Ban Sanath Nagar, Hyderabad — 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com TEST REPORT			(LA	B RECOGN	ISED	BYN	INIS	TRY (OF ENVI	RON	MENT	& FO	ORES	TS,G	OVT	.OF	INDIA)
Sanath Nagar, Hyderabad - 500 018, Tele Fax : 040-23717213 E-mail:Info@pragathilabs.com Website: www.pragathilabs.com TEST REPORT	100		Plot	No B15 &	16 Inc	dustr	ial F	state	Rehind	Pollu	tion (Contr	ol Bo	ard	Opp	Der	na Bank
TEST REPORT		Labs	1 101	San	ath N	agar	Hyd	eraba	ad - 500	018,	Tele	Fax	: 040	-237	172	13	ia Dain
TEST REPORT				E-m	ail:info	o@p	ragat	hilab	s.com V	Vebsi	te: w	ww.p	raga	thilat	os.co	m	
TEST REPORT Holiustay Name)							
						ΓE	STI	REF	PORT								
Visible Net	Indu	istry Name						Hindust	an Petroleu	m Corp	oration	Limited					
Count Coun	Pho	ne No.		0891-2894825	/4818		Visakh	Refine	гу, Маккари	ram, Vis	sakhapa Kind att	tnam-5 ention	30 011 to: Sri	Gudala	Bhag	avan	
15th Normether,2021 15th Normether,2021 No. of Samples 25	Fax	No.		0891-2759861							1.71.140.00, 20.00		DG	M – Te	chnica	l	
Part	Date	e of Reporting		15th November	r,2021	100\ 1	la camba	- 2024			Nature o	of the S	ample	F	uel Ga	ses	
Temperature, Velocity, PM, Sp., No., Hc, Co, Hc, N, N & V Stack emissions Stack etails S	P.O	No.		20000433-I	- (Stack - IB/PR2	20006	6-HP/L	OA/A	G		No. of S Method	of Anal	vsis	13	s: 1125	i5	
Stack type	Par	ameters		Temperature;	Velocity,	PM, S	O ₂ , NO _x ,	HC, C), H₂S, Ni & ¹	V			,				
Stack type	_			1	S	TACK	GASE	MISSION	ANALYSIS			-	-				
Colung Stack type Monitoring Height Dia Area New Velocity PM SO, NOx CO H ₂ S HC Ni V m m m m m m m m m	S.	Unit		Date of	2000 10		. ack d	Temn		2833		St	ack er	nissio	ns		
CDUH 2F-1 18-10-2021 60 1.00 0.785 206 6.8 32.7 265 58 25 20 8DL 8DL 8DL 40 201 122 4.5 33.2 252 60 24 19 8DL 8DL 40 201 122 4.5 33.2 252 60 24 19 8DL 8DL 40 201 122 4.5 33.2 252 60 24 19 8DL 8DL 8DL 40 201 124 4.5 33.7 216 85 25 22 8DL 8DL 8DL 40 201 124 4.5 33.7 216 85 25 22 8DL 8DL 8DL 40 201 124 4.5 33.7 216 85 26 18 8DL 8DL 8DL 4.5 33.7 216 85 25 22 8DL 8DL 4.5 205 4.5 205 4.5 205 21 4.5 4.5 205 2.0 4.5 4.5 2.0	No.		Stack type	Monitoring	Heigh	Dia.	Area		Velocity	PM	SO ₂	NOx	co	H₂S	нс	Ni	٧
COU-I 2F-2 18-10-2021 60 1.00 0.755 206 6.8 32.7 285 56 25 20 BDL BDL BDL BDL 2F-4 18-10-2021 60 1.60 201 152 4.5 33.2 252 60 24 19 BDL	1	CDILL	2.E.1	18 10 2021	m	m	m ²	°C	m/s	25.0	200	60	mg/	Nm³	04	DDI	PDI
3 DUI	2	CDU-I	2-F-2	18-10-2021	60	1.00	0.785	206	6.8	32.7	265	56	25		20	BDL	BDL
CUU-II 11-F-01 19-10-2021 60 2.55 5.104 218 6.6 34.1 248 88 21 22 BDL BDL BDL 5 COU-II 12F-01 19-10-2021 60 1.60 2.01 224 48 33.7 216 65 26 -18 BDL BDL 5 COU-II 14F-01 27-10-2021 60 2.18 3.733 206 2.4 21.5 175 52 21 19 BDL BDL 7 FCCU-II 14F-01 27-10-2021 60 3.55 3.733 206 2.4 21.5 175 52 21 19 BDL BDL BDL 7 FCCU-II 14F-01 27-10-2021 60 3.55 3.730 172 3.7 22.8 320 60 19 15 BDL	3	CDU-I	2-F-4	18-10-2021	60	1.60	2.01	152	4.5	33.2	252	60	24		19	BDL	BDL
FCCU-II 44-5-1 05-10-2021 60 2.18 3.733 206 2.4 21.5 175 52 21 19 BDL BDL	5	CDU-II	11-F-01 12-F-01	19-10-2021	60	2.55	5.104	218	6.6	34.1	248	68	21	••	22	BDL	BDL
7	6	FCCU-I	4-F-51	05-10-2021	60	2.18	3.733	206	2.4	21.5	175	52	21		19	BDL	BDL
Suptraction Superaction Suptraction Superaction Suptraction Suptraction Superaction Suptraction Superaction Suptraction Superaction	7	FCCU-II	14-F-01	27-10-2021	60	1.35	1.431	235	4.5	20.5	156	64	28		21	BDL	BDL
DHDS 60F-01 25-10-2021 60 134 1410 215 36 354 90 78 25 -17 8DL 8DL	9	DHT- HGU	90-F-01/2 91-F-20	13-10-2021	60	3.05	7.309	172	3.7 7.0	22.8	320	60	19	77	15	BDL	BDL
DHDS 61-F-11 25-10-2021 60 1.60 2.011 190 6.3 29.6 75 81 24 16 BDL	10	DHDS	60-F-01	25-10-2021	60	1.34	1.410	215	3.6	35.4	90	78	25		17	BDL	BDL
2	11	DHDS	61-F-11	25-10-2021	60	1.60	2.011	190	6.3	29.6	75	81	24		16	BDL	BDL
CPP HRSG-III 20-10-2021 60 3.00 7.055 150 13.3 18.2 43 67 22 17 BDL BDL	13	CCR	74-F-1/2/3/4	29-10-2021	60	1.50	1.767	182	3.2	3.7	36	62 58	19		23	BDL	BDL
5 CPP HRSG-IV 20-10-2021 60 3.00 7.065 140 13.6 18.4 50 72 24 15 8DL 8DL 60 CPP HRSG-IV 20-10-2021 60 3.00 7.065 157 13.2 18.6 42 67 17 18 8DL 8DL 7 CPP HRSG-IV 20-10-2021 60 3.00 7.065 162 12.6 18.1 46 71 18 19 8DL 8DL 7 CPP HRSG-IV 20-10-2021 60 3.00 7.065 162 12.6 18.1 46 71 18 19 8DL 8DL 8DL 7 CPP HRSG-IV 20-10-2021 60 1.30 13.27 246 0.5 8.4 38 65 24 14 15 8DL 8DL 7 CPP 1	14 CPP HRSG-III 20-10-2021 60					3.00	7.065	150	13.3	18.2	43	67	22		17	BDL	BDL
Section	15	CPP	HRSG-IV	20-10-2021	60	3.00	7.065	140	13.6	18.4	50	72	24		15	BDL	BDL
B	17	CPP	HRSG-VI	20-10-2021	60	3.00	7.065	162	13.2	18.6	42	71	1/	-	18	BDL	BDI
9 DHT-HGU 91-F-01 13-10-2021 60 1.30 1.327 246 0.5 8.4 38 65 24 14 0 FCC NHT 75-F-01 28-10-2021 60 1.01 0.801 230 2.9 3.7 33 65 16 20 1 FCC NHT 75-F-51 28-10-2021 60 1.35 1.430 .155 1.5 3.9 28 60 25 22 2 FCCU-I FGD-I 05-10-2021 60 1.76 2.433 66 12.4 27.7 46 63 24 16 BDL BDL 3 FCCU-II FGD-II 27-10-2021 60 2.00 3.142 65 4.5 32.4 57 65 23 19 BDL BDL 4 DHDSSRU 65-X-001 06-10-2021 60 1.21 1.150 210 2.8 19.3 71 56 18 8.2 17 5 DHDSSRU 79-X-310 06-10-2021 60 1.01 0.801 225 3.5 25.4 45 52 20 8.5 14 5 DHT-SRU 92-M-22 13-10-2021 60 1.50 1.767 274 5.6 8.6 92 51 15 8.3 13 Stack emissions Revised Norm (mg/Nm³) Fuel Type SO2 NOx PM CO Ni & V H ₂ S Irraces & CPP Gas 50 350 10 150 150 CRegenerators 1700 450 100 200 5 Liquid 1700 450 100 400 5 U'S (65-X-01 & 79-X-310) 350 150 15 Methods for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 SO2 Methods for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 OX Methods for measurement of air pollution IS: 11255 (Part III) 1985 OX Methods for measurement of air pollution IS: 11255 (Part III) 2005 CRECO GC Method	18	PP-1	IBH	05-10-2021	60	2.40	4.525	170	3.3	34.5	90	80	27		15	BDL	BDL
FCCNHT 75-F-51 28-10-2021 60 1.35 1.430 1.55 1.5 3.9 28 60 25 22	19	DHT- HGU	91-F-01 75-F-01	13-10-2021	60	1.30	1.327	246	0.5	8.4	38	65	24		14	-	
2 FCCU-I FGD-I 05-10-2021 60 1.76 2.433 66 12.4 27.7 46 63 24 16 BDL BDL 3 FCCU-II FGD-II 27-10-2021 60 2.00 3.142 65 4.5 32.4 57 65 23 19 BDL BDL 4 DHDSSRU 65-X-001 06-10-2021 60 1.21 1.150 210 2.8 19.3 71 56 18 8.2 17 5 DHDSSRU 79-X-310 06-10-2021 60 1.01 0.801 225 3.5 25.4 45 52 20 8.5 14 6 DHT-SRU 92-M-22 13-10-2021 60 1.50 1.767 274 5.6 8.6 92 51 15 8.3 13 Stack emissions Revised Norm (mg/Nm³) Fuel Type SO2 NOx PM CO Ni & V H2S Imaces & CPP Gas 50 350 10 150 Liquid 1700 450 100 200 5 CRegenerators 1700 450 100 200 5 CRegenerators 1700 450 100 400 5 CRUS (65-X-01 & 79-X-310) 350 150 150 Methodo for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 SO2 Methods for measurement of emissions from stationary sources IS: 11255 (Part III) 1985 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 CRCO GC Methods for measurement of air pollution IS: 11255 (Part VII) 2005 (Methods for measurement	21	FCC NHT	75-F-51	28-10-2021	60	1.35	1.430	,155	1.5	3.9	28	60	25		22		
S FCU-II FGD-II 27-10-2021 60 2.00 3.142 65 4.5 32.4 57 65 23 19 BDL BDL	22	FCCU-I	FGD-I	05-10-2021	60	1.76	2.433	66	12.4	27.7	46	63	24		16	BDL	BDL
Social Color	23	DHDSSRII	FGD-II 65-X-001	27-10-2021	60	2.00	3.142	65 210	4.5	32.4	57	65	23	8.2	19	BDL	BDL
Stack emissions Revised Norm (mg/Nm³) Stack emissions Revised Norm (mg/Nm³) Fuel Type SO2 NOx PM CO Ni & V H2S	25	DHDSSRU	79-X-310	06-10-2021	60	1.01	0.801	225	3.5	25.4	45	52	20	8.5	14		
Fuel Type SO2 NOx PM CO Ni & V H2S	26	DHT-SRU	92-M-22	13-10-2021	60	1.50	1.767	274	5.6	8.6	92	51	15	8.3	13		
Type SO2 NOX PM CO Ni & V H2S				Fuel	Stack	erniss	ions Re	vised I	vorm (mg/N	im ³)							
Column C		-		Туре	SO ₂			NOX		PM			CO		Ni &	٧	H₂S
CC Regenerators	urn	aces & CPP		Liquid	1700			350 450		100			150			+	
Methodology for testing of pollutants PM Methods for measurement of emissions from stationary sources IS: 11255 (Part I) 1985 SO ₂ Methods for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 NOX Methods for measurement of air pollution IS: 11255 (Part VII) 2005 ICECO GC Method Analyst Signatory (MD. Azeem) COPY Page 4 of 5	CC	Regenerator	rs		1700			450		100			400		5		***
Methodology for testing of pollutants PM Methods for measurement of emissions from stationary sources IS: 11255 (Part I) 1985 SO ₂ Methods for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 NOX Methods for measurement of air pollution IS: 11255 (Part VII) 2005 ICECO GC Method Analyst Signatory (MD. Azeem) COPY Page 4 of 5	RU	S (65-X-01 &	79-X-310)	***	•••			350		***			150				15
Methodology for testing of pollutants PM Methods for measurement of emissions from stationary sources IS: 11255 (Part I) 1985 802 Methods for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 NOX Methods for measurement of air pollution IS: 11255 (Part VII) 2005 ICECO GC Method Analyst Signatory (MD. Azeem) COPY Page 4 of 5																	
SO2 Methods for measurement of emissions from stationary sources IS: 11255 (Part II) 1985 NOX Methods for measurement of air pollution IS: 11255 (Part VII) 2005 ICECO GC Method Analyst Signatory (MD. Azeem) COPY Page 4 of 5	P	M Meth	ods for measure	ment of emission	Met from st	hodolo	ogy for t	esting	of pollutant	s 11255		/Pa	rt I)			1005	
NOX Methods for measurement of air pollution IS: 11255 (Part VII) 2005 C&CO GC Method Analyst Signatory (MD. Azeem) COPY Page 4 of 5	S	D ₂ Meth	ods for measure	ment of emissions	from sta	ationar	y source	5	IS: 1	11255		(Pa	rt II)			1985	
Analyst Signatory (MD. Azeem) Authorized Signatory (M. Ravi Kiran) COPY Page 4 of 5	HCR	CO GC I	ods for measurer Aethod	ment of air polluti	on	-			IS: 1	1255		(Par	t VII)			2005	
Analyst Signatory (MD. Azeem) Authorized Signatory (M. Ravi Kiran) Page 4 of 5		331				-						-	7				
Analyst Signatory (MD. Azeem) COPY Authorized Signatory (M. Ravi Kiran) Page 4 of 5		M	2. Azur	4								V	H	D. J	7	-	
COPY Page 4 of 5		Analyst	Azeem)									Autho /M	Ravi	Sign	atory		
COPY Page 4 of 5		(MD.	ALGEIN									(in)	(vavi	i va ari	,	19an 12	
							C	PY							Pag	e 4 of	5

	Methodology for testing of	f pollutants		
PM	Methods for measurement of emissions from stationary sources	IS: 11255	(Part I)	1985
802	Methods for measurement of emissions from stationary sources	IS: 11255	(Part II)	1985
NOx	Methods for measurement of air pollution	IS: 11255	(Part VII)	2005
HC&CO	GC Method			



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(LAB RECOGNISED BY MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

(ISO 45001:2018, OHSAS 18001:2007)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name	Hindustan Petrol	eum Corporation Limited					
Address		puram, Visakhapatnam-530 011					
Phone No.	0891-2894825/4818	Kind attention to: Sri Gu	idala Bhagayan				
Fax No.	0891-2759861	91-2759861 DGM - 1					
Date of Reporting	08th December, 2021	Nature of the Sample	Fuel Gases				
Our Ref. No.	Pra/Env/HPCL (Stack 1-28) November, 2021	No. of Samples	28				
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 11255				
Parameters	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H ₂ S, Ni		10. 11200				

STACK GAS EMISSION ANALYSIS

				Stack details							9	tack	emissio	one	_	
S.	Unit	Stack type	Date of	Height	Dia.	-		Velocity	РМ	SO ₂		CO	H ₂ S	HC	Ni	٧
No.			Monitoring	m	m	m ²	°C	m/s	1 191	002	HOX		g/Nm ³	110	141	V
1	CDU-I	2-F-1	15-11-2021	60	1.40	1.539	172	7.5	32.2	325	75	25		23	BDL	BDL
2	CDU-I	2-F-2	15-11-2021	60	1.00	0.785	196	6.6	29.4	280	64	27	-	21	BDL	BDL
3	CDU-I	2-F-4	15-11-2021	60	1.60	2.01	165	4.4	30.6	275	68	26		22	BDL	BDL
4	CDU-II	11-F-01	16-11-2021	60	2.55	5.104	210	6.5	31.5	256	76	24		24	BDL	BDL
5	CDU-II	12-F-01	16-11-2021	60	1.60	2.01	275	4.6	30.3	230	72	28		20	BDL	BDL
6	CDU-III	42-F-01	08-11-2021	60	2.74	5.896	245	4.0	32.6	290	125	32		23	BDL	BDI
7	CDU-III	42-F-02	08-11-2021	60	1.59	1.986	272	3.6	30.4	275	115	26	-	30	BDL	BDL
8	FCCU-I	4-F-51	05-11-2021	60	2.18	3.733	198	2.5	20.2	190	64	24		21	BDL	BDL
9	FCCU-II	14-F-01	10-11-2021	60	1.35	1.431	245	4.3	18.7	165	75	25		22	BDL	BDI
10	DHT	90-F-01/2	11-11-2021	60	3.05	7.309	165	3.9	21.3	340	74	21	-	17	BDL	BDI
11	DHT- HGU	91-F-20	11-11-2021	60	2.15	3.63	148	7.3	8.2	80	72	20		20	BDL	BDI
12	DHDS	60-F-01	09-11-2021	60	1.34	1.410	206	3.5	32.8	96	85	27	-	19	BDL	BDI
13	DHDS	61-F-11	09-11-2021	60	1.60		172	6.2	26.2	82	92	26		18	BDL	BDI
14	NHT	72- F-01/02	02-11-2021	60	1.50	-	175	3.4	3.4	46	74	24	-	25	BDL	BD
15	CCR	74-F-1/2/3/4	02-11-2021	60	3.37	8.923	172	3.2	3.1	42	65	21		18	BDL	BDI
16	CPP	HRSG-III	03-11-2021	60	3.00		178	13.5	18.8	48	78	24		19	BDL	BD
17	CPP	HRSG-IV	03-11-2021	60	3.00	The state of the s	146	13.2	19.2	45	84	26		18	BDL	BDI
18	CPP	HRSG-V	03-11-2021	60	3.00	-	151	13.4	19.3	47	76	20		21	BDL	BDI
19	CPP	HRSG-VI	03-11-2021	60	3.00		154	12.8	19.5	40	82	22	-	20	BDL	BDI
20	PP-1	IBH	05-11-2021	60	2.40		-	3.1	31.2	95	88	30	1	18	BDL	BD
21	DHT- HGU	91-F-01	11-11-2021	60	1.30	And the second second	283	0.5	7.8	44	76	26		16	-	
22	FCC NHT	75-F-01	01-11-2021	60	1.01	_	262	2.6	3.2	42	72	19	-	23	-	
23	FCC NHT	75-F-51	01-11-2021		1.35			1.6	3.4	35	68	28	1	24	-	
24	FCCU-I	FGD-I	05-11-2021	-	1.76		The second second	12.8	24.2	42	76	27		17	BDL	BD
25	FCCU-II	FGD-II	10-11-2021	60	2.00	THE RESERVE AND ADDRESS OF THE		4.3	30.7	51	74	25		21	BDL	BD
26	DHDSSRU	65-X-001	12-11-2021	60	-	1.150		2.6	18.6	80	65	21	8.2	19		
27	DHDSSRU	79-X-310	12-11-2021		TOTAL SPECIMENT AND IN	0.801	- Charles and Control of the	3.3	22.3	39	62	23	9.1	15	1	
28	DHT-SRU	92-M-22	11-11-2021	-	-	1.767		5.4	8.2	85	60	18	8.6	16	-	
	A control of the cont	4	1					orm (mg/Nm		00	100	10	0.0	10	-	
			Fuel Type	SC		The second second	NOx	1	PM		CO			Ni & V		H₂S
Fur	naces & CPP		Gas	50)		350		10			150				
		0	Liquid	170	00		450		100		200			5		***
FC	Regenerator	18		170	00		450		100			400		5		***
SR	J'8 (65-X-01 8	79-X-310)	***				350		222			150		**		15

	Methodology for testing o	f pollutants		
PM	Methods for measurement of emissions from stationary sources	IS: 11255	(Part I)	1985
SO,	Methods for measurement of emissions from stationary sources	IS: 11255	(Part II)	1985
NOx	Methods for measurement of air pollution	IS: 11255	(Part VII)	2005
HC&CO	GC Method		V 301.1112	

Analyst Signatory
(MD.Azeem)

Authorized Signatory (M. Ravi Kiran) AGATHILABS • PRAGATHILABS • PRAGATHI

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(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

PRAGATHI LABS • PRAGATHI LABS

Industry Name		Hindustan Petroleum Corporation Limited								
Address	Visakh Refinery, Malkapur	ram, Visakhapatnam-530 011								
Phone No.	0891-2894825/4818									
Fax No.	0891-2759861	DGM - Technical								
Date of Reporting	04th January,, 2022	Nature of the Sample	Fuel Gases							
Our Ref. No.	Pra/Env/HPCL (Stack 1-28) December, 2021	No. of Samples	28							
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 11255							
Parameters	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H ₂ S	, Ni & V								

STACK GAS EMISSION ANALYSIS

		1				Stack d	etails				S	tack e	missio	ns		
S.	Unit	Stack type	Date of	Height	Dia.	Area	Temp.	Velocity	PM	SO2	NOx	CO	H₂S	HC	Ni	٧
No.			Monitoring	m	m	m²	°C	m/s		177		m g	/Nm³			
1	CDU-I	2-F-1	08-12-2021	60	1.40	1.539	185	7.3	34.6	310	68	23	75.0	24	BDL	BDL
2	CDU-I	2-F-2	08-12-2021	60	1.00	0.785	204	6.5	31.8	265	58	24		22	BDL	BDL
3	CDU-I	2-F-4	08-12-2021	60	1.60	2.01	174	4.6	26.2	284	62	21	***	24	BDL	BDL
4	CDU-II	11-F-01	10-12-2021	60	2.55	5.104	218	6.6	28.1	265	70	21		25	BDL	BDL
5	CDU-II	12-F-01	10-12-2021	60	1.60	2.01	262	4.4	29.7	245	65	24		22	BDL	BDL
6	CDU-III	42-F-01	17-12-2021	60	2.74	5.896	232	4.1	30.4	280	110	28		26	BDL	BDL
7	CDU-III	42-F-02	17-12-2021	60	1.59	1.986	258	3.7	27.8	254	106	23		28	BDL	BDL
8	FCCU-I	4-F-51	01-12-2021	60	2.18	3.733	190	2.4	19.6	175	60	21		25	BDL	BDL
9	FCCU-II	14-F-01	02-12-2021	60	1.35	1.431	230	4.1	18.3	154	69	20	-	24	BDL	BDL
10	DHT	90-F-01/2	13-12-2021	60	3.05	7.309	173	3.7	20.8	325	68	18		19	BDL	BDL
11	DHT- HGU	91-F-20	13-12-2021	60	2.15	3.63	156	7.1	7.8	76	65	24		22	BDL	BDL
12	DHDS	60-F-01	14-12-2021	60	1.34	1.410	230	3.6	30.4	90	80	32		21	BDL	BDL
13	DHDS	61-F-11	14-12-2021	60	1.60	2.011	184	6.4	24.7	74	85	22		20	BDL	BDL
14	NHT	72- F-01/02	06-12-2021	60	1.50	1.767	.182	3.6	3.7	42	68	28	***	23	BDL	BDI
15	CCR	74-F-1/2/3/4	06-12-2021	60	3.37	8.923	165	3.4	3.5	36	60	25	440	20	BDL	BDL
16	CPP	HRSG-III	16-12-2021	60	3.00	7.065	154	13.2	18.4	42	72	20	***	23	BDL	BOL
17	CPP	HRSG-IV	16-12-2021	60	3.00	7.065	140	13.0	18.7	40	77	22		21	BDL	BDL
18	CPP	HRSG-V	17-12-2021	60	3.00	7.065	144	13.1	18.6	41	71	23		20	BDL	BDL
19	CPP	HRSG-VI	16-12-2021	60	3.00	7.065	148	12.9	18.2	35	76	25		18	BDL	BDL
20	PP-1	IBH	09-12-2021	60	2.40	4.525	174	3.2	30.6	88	83	26		16	BDL	BOL
21	DHT- HGU	91-F-01	13-12-2021	60	1.30	1.327	270	0.6	7.5	40	70	21	**	15	**	**
22	FCC NHT	75-F-01	07-12-2021	60	1.01	0.801	254	2.8	3.5	37	65	22	550	20		
23	FCC NHT	75-F-51	07-12-2021	60	1.35	1.430	172	1.6	3.7	31	60	24		22		
24	FCCU-I	FGD-I	01-12-2021	60	1.76	2.433	66	13.2	26.0	47	72	25	***	14	BDL	BDL
25	FCCU-II	FGD-II	02-12-2021	60	2.00	3.142	65	4.5	28.3	45	68	21		20	BDL	BDL
26	DHDSSRU	65-X-001	15-12-2021	60	1.21	1.150	224	2.8	17.7	73	60	23	8.5	16	**	***
27	DHDSSRU	79-X-310	15-12-2021	60	1.01	0.801	226	3.5	20.6	32	56	26	9.3	17	77	- **
28	DHT-SRU	92-M-22	09-12-2021	60	1.50	1.767	275	5.6	7.6	78	54	20	8.8	18	-	
Stac	k emissions F	Revised Norm (n	4													
			Fuel Type	SO			NOx		PM			со		Ni & V		H₂S
Fun	naces & CPP		Gas	50			350		10			150				
			Liquid	1700			450		100			200		5		
	Regenerato			1700 450			100			400 5			-	wine		
	"S (65-X-01 8		***	***			350		***			150		***		15

	Methodology for testing of	of pollutants		
PM	Methods for measurement of emissions from stationary sources	IS: 11255	(Part I)	1985
SO	Methods for measurement of emissions from stationary sources	IS: 11255	(Part II)	1985
NOx	Methods for measurement of air pollution	IS: 11255	(Part VII)	2005
HC&CO	GC Method			

Analyst Signatory (MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name	Hindustan Petro	leum Corporation Limited	
Address	Visakh Refinery, Malka	apuram, Visakhapatnam-530 011	
Phone No.	0891-2894825/4818	Kind attention to: Sri Gu	
Fax No.	2001 0750004		- Technical
Date of Reporting	02nd February, 2022	Nature of the Sample	Fuel Gases
Our Ref. No.	Pra/Env/HPCL (Stack 1-28) January, 2022	No. of Samples	28
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 11255
Parameters	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H ₂ S, N	li & V	

STACK	GAS	FMISSION	ANAL	YSIS

		T		Stack details							S	tack e	mission	15		
S.	Unit	Stack type	Date of	Height		Area	Temp.	Velocity	PM	SO2	NOx	CO	HzS	HC	Ni	٧
No.		Otack type	Monitoring	m	m	m²	•C	m/s				mg.	/Nm³			
1	CDU-I	2-F-1	03-01-2022	60	1.40	1.539	190	7.1	31.2	352	75	27	-	21	BDL	BD
2	CDU-I	2-F-2	03-01-2022	60	1.00	0.785	225	6.4	34.3	290	64	22		24	BDL	BD
3	CDU-I	2-F-4	03-01-2022	60	1.60	2.01	150	4.4	29.8	310	70	25		26	BDL	BD
4	CDU-II	11-F-01	10-01-2022	60	2.55	5.104	230	6.5	32.6	280	82	24		27	BDL	BD
5	CDU-II	12-F-01	10-01-2022	60	1.60	2.01	275	4.2	30.3	262	76	26		25	BDL	BD
6	CDU-III	42-F-01	11-01-2022	60	2.74	5.896	245	4.3	32.7	295	118	23		23	BDL	BD
7	CDU-III	42-F-02	11-01-2022	60	1.59	1.986	265	3.5	27.4	280	114	27	•	24	BDL	BD
8	FCCU-I	4-F-51	13-01-2022	60	2.18	3.733	198	2.3	18.2	190	68	25		28	BDL	BD
9	FCCU-II	14-F-01	18-01-2022	60	1.35	1.431	244	4.0	17.5	183	76	24		26	BDL	BD
10	DHT	90-F-01/2	17-01-2022	60	3.05	7.309	151	3.6	19.3	340	77	22		22	BDL	BD
11	DHT- HGU	91-F-20	17-01-2022	60	2.15	3.63	140	7.0	7.4	70	74	26		24	BDL	BD
12	DHDS	60-F-01	12-01-2022	60	1.34	1.410	242	3.5	32.7	82	92	30		23	BDL	BD
13	DHDS	61-F-11	12-01-2022	60	1.60	2.011	153	6.2	22.3	65	94	26		22	BDL	BD
14	NHT	72- F-01/02	04-01-2022	60	1.50	1.767	195	3.5	3.5	49	76	31		25	BDL	BD
15	CCR	74-F-1/2/3/4	04-01-2022	60	3.37	8.923	152	3.2	3.2	44	72	27		24	BDL	BD
16	CPP	HRSG-III	06-01-2022	60	3.00	7.065	172	12.8	17.6	35	84	24		26	BDL	BD
17	CPP	HRSG-IV	06-01-2022	60	3.00	7.065	148	13.4	17.2	32	88	25		23	BDL	80
18	CPP	HRSG-V	06-01-2022	60	3.00	7.065	153	13.3	19.3	30	82	26		22	BDL	BD
19	CPP	HRSG-VI	06-01-2022	60	3.00	7.065	156	13.1.	18.8	42	85	27		20	BDL	BD
20	PP-1	IBH	10-01-2022	60	2.40	4.525	182	3.4	33.2	75	90	28		19	BDL	80
21	DHT- HGU	91-F-01	17-01-2022	60	1.30	1.327	285	0.6	7.1	31	75	23		17	**	
22	FCC NHT	75-F-01	05-01-2022	60	1.01	0.801	268	3.0	3.2	32	58	24		21		
23	FCC NHT	75-F-51	05-01-2022	60	1.35	1.430	185	1.6	3.4	38	68	26	**	24		
24	FCCU-I	FGD-I	13-01-2022	60	1.76	2.433	66	13.4	23.5	70	76	28		16	BDL	BD
25	FCCU-II	FGD-II	18-01-2022	60	2.00	3.142	65	4.3	30.7	65	75	24	(++	23	BDL	BD
26	DHDSSRU	65-X-001	07-01-2022	60	1.21	1.150	235	2.7	18.2	65	66	25	8.2	18		-
27	DHDSSRU	79-X-310	07-01-2022	60	1.01	0.801	240	3.6	19.2	39	64	26	9.0	19		
28	DHT-SRU	92-IM-22	17-01-2022	60	1.50	1.767	290	5.7	7.2	67	62	23	8.5	21		**
-	A STATE OF THE PARTY OF THE PAR	evised Norm (mg	THE RESERVE OF THE PROPERTY OF THE PERSON NAMED IN COLUMN TWO PARTY OF THE PERSON NAME	00	11.00	11101	1 220									
.,,,,,	A. OTHIOGRAPIA	311333 113111 [11]	Fuel Type	802	- 11		NOx		PM			со		Ni &	V	H ₂ S
Furr	aces & CPP		Gas	50			350		10			150				
-			Liquid	1700			450		100			200		5		***
FCC	Regenerator			1700		-	450		100			400		5		
	15 (65 X-01 &				-	7	350					150				15

	Methodology for testin	g of pollutants		
PM	Methods for measurement of emissions from stationary sources	IS: 11255	(Part I)	1985
50,	Methods for measurement of emissions from stationary sources	IS: 11255	(Part II)	1985
NOX	Messads for measurement of air pollution	IS: 11255	(Part VII)	2005
HC&CO	CC Method			

Analyst Signatory (MD, Azeem) Authorized Signatory (M. Ravi Kiran)

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E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name	Hindustan Petroleum Corporation Limited				
Address	Visakh Refinery, Malkapuram, Visakhapatnam-530 011				
Phone No.	0891-2894825/4818 Kind attention to: Sri GudalaBh				
Fax No.	0891-2759861	DGN	I - Technical		
Date of Reporting	03rd March, 2022	Nature of the Sample	Fuel Gases		
Our Ref. No.	Pra/Env/HPCL (Stack 1-28) February, 2022	No. of Samples	28		
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 11255		
Parameters	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H ₂ S	5. Ni & V			

STACK GAS EMISSION ANALYSIS

			De517 32			Stack d	etails			us.	S	tack e	mission			
S.	Unit	Stack type	Date of	Height	Dia.	Area	Temp.	Velocity	PM	SO ₂	NOx	CO	H₂S	HC	Ni	٧
No.	1018000	J	Monitoring	m	m	m²	•c	m/s				H	/Nm³			
1	CDU-I	2-F-1	01-02-2022	60	1.40	1.539	198	7.4	34.6	365	69	25		22	BDL	BD
2	CDU-I	2-F-2	01-02-2022	60	1.00	0.785	240	6.6	36.7	315	72	26		20	BDL	BD
3	CDU-I	2-F-4	01-02-2022	60	1.60	2.01	165	4.6	32.2	326	76	27		23	BDL	BD
4	CDU-II	11-F-01	02-02-2022	60	2.55	5.104	242	6.7	34.3	295	75	26		24	BDL	BD
5	CDU-II	12-F-01	02-02-2022	60	1.60	2.01	294	4.3	33.8	275	71	22		22	BDL	BD
6	CDU-III	42-F-01	17-02-2022	60	2.74	5.896	235	4.5	34.2	280	110	21		20	BDL	BD
7	CDU-III	42-F-02	03-02-2022	60	1.59	1.986	278	3.8	29.7	265	106	24		21	BDL	BD
8	FCCU-I	4-F-51	15-02-2022	60	2.18	3.733	182	2.3	19.5	178	75	23		24	BDL	BD
9	FCCU-II	14-F-01	17-02-2022	60	1.35	1.431	225	4.6	18.3	135	154	26	575	28	BDL	BD
10	DHT	90-F-01/2	08-02-2022	60	3.05	7.309	164	3.8	18.6	325	85	25		24	BDL	BD
11	DHT- HGU	91-F-20	08-02-2022	60	2.15	3.63	152	7.3	7.2	74	69	28		21	BDL	BD
12	DHDS	60-F-01	04-02-2022	60	1.34	1.410	235	3.8	35.3	88	83	28		26	BDL	BD
13	DHDS	61-F-11	04-02-2022	60	1.60	2.011	164	6.4	24.8	72	87	23		24	BDL	BD
14	NHT	72- F-01/02	10-02-2022	60	1.50	1.767	206	3.7	3.7	58	85	30	***	21	BDL	BD
15	CCR	74-F-1/2/3/4	10-02-2022	60	3.37	8.923	164	3.4	3.5	49	78	25		22	BOL	BD
16	CPP	HRSG-III	07-02-2022	60	3.00	7.065	165	12.6	18.2	42	92	28		23	BDL	BD
17	CPP	HRSG-IV	07-02-2022	60	3.00	7.065	154	13.1	17.8	38	83	29		20	BDL	BD
18	CPP	HRSG-V	07-02-2022	60	3.00	7.065	158	13.0	18.4	36	75	27		21	BDL	BD
19	CPP	HRSG-VI	07-02-2022	60	3.00	7.065	162	12.7	18.2	49	80	29		23	BDL	BD
20	PP-1	IBH	18-02-2022	60	2.40	4.525	190	3.6	31.7	70	82	32		17	BDL	BD
21	DHT- HGU	91-F-01	08-02-2022	60	1.30	1.327	270	0.6	7.6	37	70	26		15		
22	FCC NHT	75-F-01	11-02-2022	60	1.01	0.801	254	3.2	3.5	38	53	27		19		
23	FCC NHT	75-F-51	11-02-2022	60	1.35	1.430	176	1.6	3.8	45	65	30		21		
24	FCCU-I	FGD-I	15-02-2022	60	1.76	2.433	66	13.2	25.7	78	70	32		18	BDL	BD
25	FCCU-II	FGD-II	14-02-2022	60	2.00	3.142	65	4.5	32.4	60	68	27		25	BDL	BD
26	DHDSSRU	65-X-001	16-02-2022	60	1.21	1.150	224	2.9	18.7	74	58	28	8.4	19		
27		79-X-310	16-02-2022	60	1.01	0.801	232	3.8	18.4	46	60	29	9.1	21		
28	DHT-SRU	92-M-22	18-02-2022	60	1.50	1.767	275	5.3	7.7	60	56	26	8.7	23	**	
		vised Norm (mg/l														
			Fuel Type	SO ₂			NOx		PM			со		Ni &	V	H ₂ S
urna	ces & CPP		Gas	50			350		10			150				
			Liquid	1700			450		100			200		5		•••
FCC :	Regenerators			1700			450		100			400		5		
SRU	S (65-X-01 & 7	9-X-310)	***				350		***			150		***		15

	Methodology for testin	g of pollutants		
PM	Methods for measurement of emissions from stationary sources	IS: 11255	(Part I)	1985
SO ₂	Methods for measurement of emissions from stationary sources	IS: 11255	(Part II)	1985
NOx	Methods for measurement of air pollution	IS: 11255	(Part VII)	2005
HC&CO	GC Method	•		

(MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

PRAGATHI LABS • PRAGATHI LABS

Industry Name	Hindustan Petrole	Hindustan Petroleum Corporation Limited				
Address	Visakh Refinery, Malkapuram, Visakhapatnam-530 011					
Phone No.	0891-2894825/4818					
Fax No.	0891-2759861		1 - Technical			
Date of Reporting	04th April, 2022	Nature of the Sample	Fuel Gases			
Our Ref. No.	Pra/Env/HPCL (Stack 1-28) March, 2022	No. of Samples	28			
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 11255			
Parameters	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H	Temperature, Velocity, PM, SO ₂ , NO _x , HC, CO, H ₂ S, Ni & V				

STACK GAS EMISSION ANALYSIS

			Data of			Stack d	etalls					Stack e	missio	n\$		
S.	Unit	Stack type	Date of Monitoring	Height	Dia.	Area	Temp.	Velocity	PM	SO ₂	NO _x	CO	H ₂ S	HC	Ni	٧
No.			Montening	m	m	m²	+C	m/s				mg	/Nm³		0.	
1	CDU-I	2-F-1	08-03-2022	60	1.40	1.539	192	7.2	41.5	405	75	26	255	25	BDL	BDL
2	CDU-I	2-F-2	08-03-2022	60	1.00	0.785	232	6.5	48.3	330	80	28		23	BDL	BDL
3	CDU-I	2-F-4	08-03-2022	60	1.60	2.01	158	4.8	40.6	354	82	23		26	BDL	BDŁ
4	CDU-II	11-F-01	03-03-2022	60	2.55	5,104	210	6.6	42.5	340	79	22		27	BDL	BDL
5	CDU-II	12-F-01	03-03-2022	60	1.60	2.01	240	4.4	44.7	310	86	18	.++	25	BDL	BDL
6	CDU-III	42-F-01	04-03-2022	60	2.74	5.896	224	4.6	39.5	295	125	17	-	21	BDL	BDL
7	CDU-III	42-F-02	04-03-2022	60	1.59	1.986	310	3.6	35.3	278	134	20	-	24	BDL	BDL
8	FCCU-I	4-F-51	21-03-2022	60	2.18	3.733	210	2.4	17.2	190	78	19		26	BDL	BDL
9	FCCU-II	14-F-01	22-03-2022	60	1.35	1.431	214	4.5	16.8	154	180	22		23	BDL	BOL
10	DHT	90-F-01/2	10-03-2022	60	3.05	7.309	160	3.7	15.2	352	92	20	250	18	BOL	BDL
11	DHT- HGU	91-F-20	10-03-2022	60	2,15	3.63	146	7.1	6.8	62	75	24		19	BDL	BDL
12	DHDS	60-F-01	29-03-2022	60	1.34	1.410	216	3.6	42.5	75	80	26	14	22	BDL	BDL
13	DHDS	61-F-11	29-03-2022	60	1.60	2.011	172	6.2	31.4	60	82	21		21	BDL	BDL
14	NHT	72- F-01/02	31-03-2022	60	1.50	1.767	195	3.5	3.4	45	74	25		17	BOL	BDL
15	CCR	74-F-1/2/3/4	31-03-2022	60	3.37	8.923	171	3.2	3.2	40	70	20		20	BDL	BDL
16	CPP	HRSG-III	15-03-2022	60	3.00	7.065	180	12.8	17.6	34	81	23		21	BOL	BDL
17	CPP	HRSG-IV	15-03-2022	60	3.00	7.065	147	13.0	17.1	32	74	24		18	BDL	BDL
18	CPP	HRSG-V	15-03-2022	60	3.00	7.065	149	12.9	18.9	31	68	25		19	BDL	BOL
19	CPP	HR\$G-VI	15-03-2022	60	3.00	7.065	152	12.6	17.5	42	74	26	#55	20	BDL	BDL
20	PP-1	IBH	23-03-2022	60	2.40	4.525	182	3.8	38.2	60	71	29		16	BOL	BOL
21	DHT- HGU	91-F-01	10-03-2022	60	1.30	1.327	300	0.6	7.1	32	62	22		17	-	
22	FCC NHT	75-F-01	30-03-2022	60	1.01	0.801	255	3.4	3.2	35	47	24		16		
23	FCC NHT	75-F-51	30-03-2022	60	1.35	1,430	164	1.6	3.4	40	58	27		18		
24	FCCU-I	FGD-I	21-03-2022	60	1.76	2.433	66	13.1	34.3	71	62	30		16	BDL	BDL
25	FCCU-II	FGD-II	22-03-2022	60	2.00	3.142	65	4.3	37.6	52	60	25	-	23	BDL	BDL
26	DHDSSRU	65-X-001	24-03-2022	60	1.21	1.150	210	2.7	18.2	68	51	22	8.1	17	-	
27		79-X-310	24-03-2022		1.01	0.801	216	3.6	17.3	40	52	23	8.8	18	-	
28		92-M-22	23-03-2022	60	1.50	1.767	262	5.1	7.4	53	46	21	8.5	21		
		vised Norm (mg/														
			Fuel Type	SO ₂			NOx		PM			со		Ni &	v	H₂S
Fuma	ces & CPP		Gas	50			350		10			150				
			Liquid	1700			450		100			200		- 5		
	Regenerators			1700			450		100			400		5		-
SRU'S	S (65-X-01 & 7	9-X-310)		***			350					150				15

	Methodology for testin	g of pollutants		
PM	Methods for measurement of emissions from stationary sources	IS: 11255	(Part I)	1985
SO ₂	Methods for measurement of emissions from stationary sources	IS: 11255	(Part II)	1985
NOx	Methods for measurement of air pollution	IS: 11255	(Part VII)	2005
HC&CO	GC Method			

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Verified by (B. Ravi Teja) Analyst

Authorized Signatory (M. Ravi Kiran) Managing Director

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TEST REPORT

Industry Name	Hindustan Petroleum Corporation Limited				
Address	Visakh Refinery,	Malkapuram, Visakhapat	tnam-530 011		
Phone No.	0891-2894825/4818	Kind attention to: Sri Gudala Bhagavan			
Fax No.	0891-2759861	DGM -Technical			
Date of sampling	8th October, 2021	Nature of the Sample	Ambient Air		
Date of Reporting	15th November, 2021	No. of Samples	1		
Our Ref. No.	Pra/Env/HPCL/10 (AAQ-01)	Method of Analysis	IS: 5182 & AWMA		
P.O. No.	20000433-HB/PR200066-HP/LOA/AG				
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,E	Benzene, Benzo(a) pyrene,	Arsenic& Nickel		

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	Malkapuram
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	50
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	. 20
3	SO ₂ (μg/m³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	13
4	NO ₂ (μg/m³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	16
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8hrs	10.0
6	Pb (μg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0–24 hrs	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.24
8	NH ₃ (μg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	11.0
9	C ₆ H ₆ (µg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.21
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL

Note: BDL- Below Detectable Limit.

Analyst Signatory
(MD. Azeem)



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(ISO 45001:2018, OHSAS 18001:2007)

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TEST REPORT

Industry Name	Hindustan Petroleum Corporation Limited					
Address	Visakh Refinery, Malkapuram, Visakhapatnam-530 011					
Phone No.	0891-2894825/4818	Kind attention to: Sri Gudala Bhagavan				
Fax No.	0891-2759861	DGM -Technical				
Date of sampling	12th November 2021	Nature of the Sample	Ambient Air			
Date of Reporting	08th December , 2021	No. of Samples	1			
Our Ref. No.	Pra/Env/HPCL/11 (AAQ-01)	Method of Analysis	IS: 5182 & AWMA			
P.O. No.	20000433-HB/PR200066-HP/LOA/AG					
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,E	Benzene Benzo(a)pyrene.	Arsenic& Nickel			

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	Malkapuram
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	47
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	18
3	SO ₂ (µg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	15
4	NO ₂ (µg/m ³)	Modified Jacob & Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	19
5	O ₃ (μg/m³)	Chemical method, IS: 5182 (Part 09)	100 - 8hrs	13
6	Pb (µg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.3
8	NH ₂ (µg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	12
9	C _c H _c (μg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.27
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL
12	M (ng/m²)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL

Note: BDL- Below Detectable Limit.

Analyst Signatory (MD Azesm) Authorized Signatory (M. Ravi Kiran)

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Industry Name	Hindustan Petroleum Corporation Limited				
Address	Visakh Refinery, Malkapuram, Visakhapatnam-530 011				
Phone No.	0891-2894825/4818 Kind attention to: Sri GudalaBhaga				
Fax No.	0891-2759861	DGM -Technical			
Date of sampling	11th December, 2021	Nature of the Sample	Ambient Air		
Date of Reporting	04th January, 2022	No. of Samples	1		
Our Ref. No.	Pra/Env/HPCL/12 (AAQ-01)	Method of Analysis	IS: 5182 & AWMA		
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	The second secon			
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,E	Benzene, Benzo(a) pyrene,	Arsenic& Nickel		

Praga		Plot No.B15 & 16, Industrial Estat Sanath Nagar, Hydera E-mail:info@pragathila	COF ENVIRONMENT :2015, 0HSMS ISO 45001 te, Behind Pollution Cobad – 500 018, Tele abs.com Website: w	EX FORESTS, C :2018) Control Board, Fax: 040-237	Opp. Dena Bar 717213
		TEST RE	PORT		
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		x			
Ja do	-t Nome	Hindustan	Petroleum Corporation L	imited	
Add	stry Name ress	Visakh Refinery,	Malkapuram, Visakhapat	tnam-530 011	
	ne No.	0891-2894825/4818 0891-2759861	Kind attention to: Sri (GudalaBhagava	n
Fax	of sampling	11 th December, 2021	Nature of the Sample	Ambient Air	
Date	of Reporting	04th January, 2022 Pra/Env/HPCL/12 (AAQ-01)	No. of Samples Method of Analysis	1 IS: 5182 & AWI	MA
P.O.	Ref. No. No.	20000433-HB/PR200066-HP/LOA/AG			
Para	meters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,E iscipline: Chemical Testing:	Benzene,Benzo(a)pyrene,	Arsenic& Nickel	
		Group: Atmospheric Pollution			
		AMBIENT	T AIR QUALITY		
No.	Pollutant	Methods of Measuremen	nt & Analysis	NAAQS	Malkapuram
1	PM ₁₀ (μg/m³)	Gravimetric, IS: 5182 (Part 23)	ji	100 - 24 hrs	45
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004		60 - 24 hrs	17
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Page 1997)	art 02)	80 - 24 hrs	16
4	NO ₂ (μg/m ³)	Modified Jacob &Hochheiser (NaArse		80 - 24 hrs	20
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)		100 - 8hrs	14.0
		AACAA II Jaffaa Caaraliaa aa EDM	2000 or equipment	1.0–24 hrs	BDL
0	Pb (µg/m²)	Filter Pa-, IS: 5182 (Part 22) Gas Chromatography based on Cont	tinuous analyzer,	20.1 hr	0.36
7	CO (mg/m³)	IS: 5182 (Part 10)		400 04 h	42.0
8	NH ₃ (μg/m ³)	Gas Chromatography based on conti	inuous analyzer IS:	400 - 24 hrs	13.0
9	C ₆ H ₆ (µg/m³)	5182 (Part 11)	middus analyzor, 10.	5.0-Annum	0.30
10	B(a)P (ng/m³)	GC analysis, CPCB	**	1.0-Annum	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM Filter Pa-, Method: 822, AWMA	2000 or equipment	6.0-Annum	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2	2000 or equipment Filter	20 -Annum	BDL
Not	e: BDL- Below De	tectable Limit.			
200	ost Signatory Azeem)	Filter Pa-, IS: 5182 (Part 22) Gas Chromatography based on Cont IS: 5182 (Part 10) Indophenol blue Method, Method: 40 Gas Chromatography based on conti 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2 Pa-, Method: 822, AWMA Atectable Limit. Cop		Auth (M	orized Signatory . Ravi Kiran)
Analy (ME					

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Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad - 500 018, Tele Fax : 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name	Hindustan	Petroleum Corporation L	_imited
Address	Visakh Refinery, Malkapuram, Visakhapatnam-530 011		
Phone No.	0891-2894825/4818	Kind attention to: Sri GudalaBhagavan	
Fax No.	0891-2759861	DGM -Technical	Ambient Air
Date of sampling	12th February, 2022	Nature of the Sample	Ambient Air
Date of Reporting	03rd March, 2022	No. of Samples	1
Our Ref. No.	Pra/Env/HPCL/02 (AAQ-01)	Method of Analysis	IS: 5182 & AWMA
P.O. No.	20000433-HB/PR200066-HP/LOA/AG		A
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,E	Benzene,Benzo(a)pyrene,	Arsenica Nickei

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	Malkapuran
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	61
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	25
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	17
4	NO ₂ (μg/m ³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	20
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8hrs	13
6	Pb (μg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0–24 hrs	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.38
8	NH ₃ (μg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	12.0
9	C ₆ H ₆ (μg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.30
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL

Note: BDL- Below Detectable Limit.

Analyst Signatory (MD. Azeem)

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Authorized Signatory (M. Ravi Kiran)

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TEST REPORT

Industry Name	Hindustan	Petroleum Corporation L	imited	
Address	Visakh Refinery,	Visakh Refinery, Malkapuram, Visakhapatnam-530 011		
Phone No.	0891-2894825/4818	Kind attention to: Sri GudalaBhagavan		
Fax No.	0891-2759861	DGM –Technical		
Date of sampling	08th January, 2022	Nature of the Sample	Ambient Air	
Date of Reporting	02 nd February, 2022	No. of Samples	1	
Our Ref. No.	Pra/Env/HPCL/01 (AAQ-01)	Method of Analysis	IS: 5182 & AWMA	
P.O. No.	20000433-HB/PR200066-HP/LOA/AG			
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,E	Benzene,Benzo(a)pyrene,	Arsenic& Nickel	

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	Malkapuram
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	56
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	22
3	SO ₂ (μg/m³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	19
4	NO ₂ (μg/m³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	25
5	O ₃ (μg/m³)	Chemical method, IS: 5182 (Part 09)	100 - 8hrs	16.0
6	Pb (μg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.42
8	NH ₃ (μg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	15.0
9	C ₆ H ₆ (µg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.36
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL

Note: BDL- Below Detectable Limit.

mp. men Analyst Signatory (MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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TEST REPORT

Industry Name	Hindustan	Hindustan Petroleum Corporation Limited		
Address	Visakh Refinery,	Refinery, Malkapuram, Visakhapatnam-530 011		
Phone No.	0891-2894825/4818	Kind attention to: Sri GudalaBhagavan DGM –Technical		
Fax No.	0891-2759861			
Date of sampling	11th March, 2022	Nature of the Sample	Ambient Air	
Date of Reporting	04th April, 2022	No. of Samples	1	
Our Ref. No.	Pra/Env/HPCL/03 (AAQ-01)	Method of Analysis	IS: 5182 & AWMA	
P.O. No.	20000433-HB/PR200066-HP/LOA/AG			
Parameters	PM10,PM2.5,SO2, NO2, O3,Pb, CO, NH3,E	Benzene,Benzo(a)pyrene.	Arsenic& Nickel	

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	Malkapuram
1	PM ₁₀ (μg/m³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	69
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	27
3	SO ₂ (μg/m³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	13
4	NO ₂ (µg/m³)	Modified Jacob & Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	17
5	O ₃ (μg/m³)	Chemical method, IS: 5182 (Part 09)	100 - 8hrs	11.0
8	Pb (μg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.32
8	NH ₃ (µg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	10.0
9	С ₆ Н ₆ (µg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.24
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL

Note: BDL- Below Detectable Limit.

Verified by (B. Ravi Teja) Analyst

Authorized Signatory (M. Ravi Kiran) Managing Director

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TEST REPORT

Industry Name	Hindustar	Hindustan Petroleum Corporation Limited		
Address	Visakh Refinery	Visakh Refinery, Malkapuram, Visakhapatnam-530 011		
Phone No.	0891-2894825/4818	Kind attention to: Sri Gudala Bhagavan DGM - Technical		
Fax No.	0891-2759861			
Date of sampling	8th October,2021			
Date of Reporting	15th November, 2021	Nature of the Sample	Ambient Air	
Our Ref. No.	Pra/Env/HPCL/10 (AAQ-03)	No. of Samples	3	
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 5182 & AWMA	
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,B	enzene, Benzo(a) pyrene, Ar	senic & Nickel & HC	

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	HLPH	South Gate	Store Yard
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	60	64	55
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	25	29	23
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	17	15	14
4	NO ₂ (μg/m³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	20	18	17
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8 hrs	15.0	12.0	10.0
6	Pb (µg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL	BDL	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.57	0.50	0.45
8	NH ₃ (µg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	13.0	11.0	10.0
9	C ₆ H ₆ (μg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.40	0.45	0.41
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL	BDL	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL	BDL	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL	BDL	BDL
13	HC(mg/m³)	GC Analysis, IS:5182 (Part XVII)	**	BDL	BDL	BDL

Note: BDL- Below Detectable Limit.

Analyst Signatory
(MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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TEST REPORT

Industry Name		Hindustan Petroleum Corporation Limited			
Address	Visakh Refinery	Refinery, Malkapuram, Visakhapatnam-530 011			
Phone No.	0891-2894825/4818	Kind attention to: Sri Gudala Bhagavan DGM - Technical			
Fax No.	0891-2759861				
Date of sampling	12th November 2021				
Date of Reporting	08th December, 2021	Nature of the Sample	Ambient Air		
Our Ref. No.	Pra/Env/HPCL/11 (AAQ-03)	No. of Samples	3		
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 5182 & AWMA		
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,B	enzene, Benzo(a) pyrene, Ar	senic & Nickel & HC		

Discipline: Chemical Testing: Group: Atmospheric Pollution

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AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	HLPH	South Gate	Store Yard
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	56	59	52
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	23	26	21
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	20	18	16
4	NO ₂ (μg/m³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	25	23	20
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8 hrs	17	14	12
6	Pb (µg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL	BDL	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.65	0.58	0.50
8	NH ₃ (μg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	15	13	11
9	C ₆ H ₆ (μg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.46	0.52	0.47
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL	BDL	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL	BDL	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL	BDL	BDL
13	HC(mg/m³)	GC Analysis, IS:5182 (Part XVII)		BDL	BDL	BDL

Note: BDL- Below Detectable Limit.

mD AB **Analyst Signatory** (MD.Azeem)

Authorized Signatory (M. Ravi Kiran)

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(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name	Hindustan	Hindustan Petroleum Corporation Limited		
Address	Visakh Refinery	nery, Malkapuram, Visakhapatnam-530 011		
Phone No.	0891-2894825/4818	Kind attention to: Sri Gudala Bhagavan DGM - Technical		
Fax No.	0891-2759861			
Date of sampling	10th December 2021			
Date of Reporting	04th January, 2022	Nature of the Sample	Ambient Air	
Our Ref. No.	Pra/Env/HPCL/12 (AAQ-03)	No. of Samples	3	
P.O. No.	20000433-HB/PR200066-HP/LOA/AG			
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,B	enzene, Benzo(a) pyrene, Ar	senic & Nickel & HC	

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	HLPH	South Gate	Store Yard
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	53	56	50
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	21	23	20
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	23	21	19
4	NO ₂ (μg/m³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	28	26	23
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8 hrs	18	16	14
6	Pb (μg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL	BDL	BDL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.70	0.62	0.56
8	NH ₃ (μg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	17	15	14
9	СеНе (µg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.52	0.56	0.50
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL	BDL	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL	BDL	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL	BDL	BDL
13	HC(mg/m ³)	GC Analysis, IS:5182 (Part XVII)	••	BDL	BDL	BDL

Note: BDL- Below Detectable Limit.

Analyst Signatory
(MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad - 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name		Petroleum Corporation L	
Address	Visakh Refinery	, Malkapuram, Visakhapat	nam-530 011
Phone No.	0891-2894825/4818	Kind attention to: Sri G	
Fax No.	0891-2759861	DGM	- Technical
Date of sampling	07th January , 2022		
Date of Reporting	02 nd February, 2022	Nature of the Sample	Ambient Air
Our Ref. No.	Pra/Env/HPCL/01 (AAQ-03)	No. of Samples	3
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 5182 & AWMA
Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,B	enzene,Benzo(a)pyrene, Ar	senic & Nickel & HC

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	HLPH	South Gate	Store
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	62	68	59
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	27	30	24
3	SO ₂ (μg/m³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	30	27	23
4	NO ₂ (μg/m ³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06)	80 - 24 hrs	35	31	29
5	O ₃ (μg/m³)	Chemical method, IS: 5182 (Part 09)	100 - 8 hrs	20	18	17
6	Pb (μg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL	BDL	BDL
7	CO (mg/m ³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.74	0.68	0.60
8	NH ₃ (μg/m³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	19	17	16
9	СеНе (µg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.55	0.60	0.53
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL	BDL	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL	BDL	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL	BDL	BDL
13	HC(mg/m³)	GC Analysis, IS:5182 (Part XVII)	*-	BDL	BDL	BDL
An (f	alyst Signatory AZeem)	Methods of Measurement & Analysis Gravimetric, IS: 5182 (Part 23) Gravimetric, SOP- AIR 004 Improved West &Gaeke, IS: 5182 (Part 02) Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 06) Chemical method, IS: 5182 (Part 09) AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22) Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA GC Analysis, IS:5182 (Part XVII) cctable Limit.		Author (M.	ized Signat Ravi Kiran)	ory
		COPY			Page 1	of 5

Industry Name	Hindustar	Petroleum Corporation L	imited
Address	Visakh Refinery	, Malkapuram, Visakhapat	IIIaiii-330 011
Phone No.	0891-2894825/4818	Kind attention to: Sri G	iudala Bhagavan I - Technical
Fax No.	0891-2759861	_ DGM	- rechnical
Date of sampling	17th February, 2022		T
Date of Reporting	03rd March, 2022	Nature of the Sample	Ambient Air
Our Ref. No.	Pra/Env/HPCL/02 (AAQ-03)	No. of Samples	3
	20000433-HB/PR200066-HP/I OA/AG	Method of Analysis	IS: 5182 & AWMA
P.O. No. Parameters	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,B	enzene,Benzo(a)pyrene, Ar	rsenic & Nickel & HC

lu di ia	stor Namo	PRAGATHI LABS PRAGATHILABS PRAGA PRAGATHI LABS & (ISO 9001:2015, ISO 9001:2015,	leum Corporation L	imited		
Addre	stry Name	Visakh Refinery, Malka	puram, Visakhapat	nam-530 011		
Phon		0891-2894825/4818 Kind	attention to: Sri G	udala Bhaga	van	
Fax N	lo.	0891-2759861	DGM	- rechnical		
	of sampling	17 th February, 2022 03 rd March, 2022 Natu	re of the Sample	Ambient Air		
	of Reporting Ref. No.	Pra/Env/HPCL/02 (AAQ-03) No. o	of Samples	3		
P.O. 1		20000433-HB/PR200066-HP/LOA/AG Meth	nod of Analysis	IS: 5182 & /	AWMA	
	neters iscipline: Chemi	PM ₁₀ ,PM _{2.5} ,SO ₂ , NO ₂ , O ₃ ,Pb, CO, NH ₃ ,Benzene	,Berizo(a)pyrene, Ai	Seriic a Monor	4110	
No.	Pollutant	Methods of Measurement & Analysis	NAAQS	HLPH	South Gate	Store Yard
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	75	80	66
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	32	36	28
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	26	21	20
4	NO ₂ (μg/m ³)	Modified Jacob &Hochheiser (NaArsenite), IS 5182 (Part 06)				
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8 hrs	17	15	16
100		AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, IS: 5182 (Part 22)	1.0-24 hrs	BDL	BDL	BDL
6	Pb (μg/m³)				0.04	0.54
	Pb (μg/m³) CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.66	0.61	
6		Gas Chromatography based on Continuous	STATES CONTROL	0.66	14	13
6	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	400 - 24 hrs 5.0-Annum	16	0.53	0.48
6 7 8 9	CO (mg/m³) NH ₃ (μg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB	400 - 24 hrs	16	14	
6 7 8 9	CO (mg/m³) NH₃ (μg/m³) C ₆ H ₆ (μg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	400 - 24 hrs 5.0-Annum	16	14 0.53 BDL BDL	0.48 BDL BDL
6 7 8	CO (mg/m³) NH₃ (µg/m³) C₀H₀ (µg/m³) B(a)P (ng/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or	400 - 24 hrs 5.0-Annum 1.0-Annum	16 0.50 BDL	14 0.53 BDL	0.48 BDL BDL BDL
6 7 8 9 10 11 12	CO (mg/m³) NH₃ (µg/m³) C₀H₆ (µg/m³) B(a)P (ng/m³) As (ng/m³) Ni (ng/m³) HC(mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA GC Analysis, IS:5182 (Part XVII)	5.0-Annum 1.0-Annum 6.0-Annum	16 0.50 BDL BDL	14 0.53 BDL BDL	0.48 BDL BDL
6 7 8 9 10 11 12	CO (mg/m³) NH₃ (µg/m³) C₀H₆ (µg/m³) B(a)P (ng/m³) As (ng/m³) Ni (ng/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA GC Analysis, IS:5182 (Part XVII)	5.0-Annum 1.0-Annum 6.0-Annum 20 -Annum	16 0.50 BDL BDL BDL	14 0.53 BDL BDL BDL BDL	0.48 BDL BDL BDL BDL
6 7 8 9 10 11 12 13 Note:	CO (mg/m³) NH₃ (µg/m³) C₀H₆ (µg/m³) B(a)P (ng/m³) As (ng/m³) Ni (ng/m³) HC(mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA GC Analysis, IS:5182 (Part XVII)	5.0-Annum 1.0-Annum 6.0-Annum 20 -Annum	16 0.50 BDL BDL BDL	14 0.53 BDL BDL BDL	0.48 BDL BDL BDL BDL
6 7 8 9 10 11 12 13 Note:	CO (mg/m³) NH₃ (μg/m³) C₀H₀ (μg/m³) B(a)P (ng/m³) As (ng/m³) Ni (ng/m³) HC(mg/m³) BDL- Below Del	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA GC Analysis, IS:5182 (Part XVII)	5.0-Annum 1.0-Annum 6.0-Annum 20 -Annum	16 0.50 BDL BDL BDL BDL Author	BDL BDL BDL BDL BDL Sized Signative	0.48 BDL BDL BDL BDL
6 7 8 9 10 11 12 13 Note:	CO (mg/m³) NH₃ (μg/m³) C₀H₆ (μg/m³) B(a)P (ng/m³) As (ng/m³) Ni (ng/m³) HC(mg/m³) BDL- Below Del	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10) Indophenol blue Method, Method: 401 AWMA Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11) GC analysis, CPCB AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA GC Analysis, IS:5182 (Part XVII)	5.0-Annum 1.0-Annum 6.0-Annum 20 -Annum	16 0.50 BDL BDL BDL BDL Author	14 0.53 BDL BDL BDL BDL	0.48 BDL BDL BDL ory

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Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Industry Name	Hindustan Petroleum Corporation Limited				
Address	Visakh Refinery	, Malkapuram, Visakhapatnam-530 011			
Phone No.	0891-2894825/4818	Kind attention to: Sri G	udala Bhagavan		
Fax No.	0891-2759861		- Technical		
Date of sampling	11th March, 2022				
Date of Reporting	04th April, 2022	Nature of the Sample	Ambient Air		
Our Ref. No.	Pra/Env/HPCL/03 (AAQ-03)	No. of Samples	3		
P.O. No.	20000433-HB/PR200066-HP/LOA/AG	Method of Analysis	IS: 5182 & AWMA		
Parameters	PM10,PM2.5,SO2, NO2, O3,Pb, CO, NH3,B		senic & Nickel & HC		

Discipline: Chemical Testing: Group: Atmospheric Pollution

AMBIENT AIR QUALITY

No.	Pollutant	Methods of Measurement & Analysis	NAAQS	HLPH	South Gate	Store Yard
1	PM ₁₀ (μg/m ³)	Gravimetric, IS: 5182 (Part 23)	100 - 24 hrs	82	88	74
2	PM _{2.5} (μg/m ³)	Gravimetric, SOP- AIR 004	60 - 24 hrs	37	41	34
3	SO ₂ (μg/m ³)	Improved West &Gaeke, IS: 5182 (Part 02)	80 - 24 hrs	21	18	17
4	NO ₂ (μg/m³)	Modified Jacob &Hochheiser (NaArsenite), IS: 5182 (Part 08)	80 - 24 hrs	26	23	21
5	O ₃ (μg/m ³)	Chemical method, IS: 5182 (Part 09)	100 - 8 hrs	14	12	11
6	Pb (µg/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa., IS: 5182 (Part 22)	1.0 21 hm	RDL	8DL	BOL
7	CO (mg/m³)	Gas Chromatography based on Continuous analyzer, IS: 5182 (Part 10)	2.0- 1 hr	0.57	0.53	0.48
8	NH ₃ (μg/m ³)	Indophenol blue Method, Method: 401 AWMA	400 - 24 hrs	13	12	10
9	С ₆ Н ₆ (µg/m³)	Gas Chromatography based on continuous analyzer, IS: 5182 (Part 11)	5.0-Annum	0.42	0.48	0.40
10	B(a)P (ng/m³)	GC analysis, CPCB	1.0-Annum	BDL	BDL	BDL
11	As (ng/m³)	AAS Method after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	6.0-Annum	BDL	BDL	BDL
12	Ni (ng/m³)	AASMethod after Sampling on EPM 2000 or equipment Filter Pa-, Method: 822, AWMA	20 -Annum	BDL	BDL	BDL
13	HC(mg/m ³)	GC Analysis, IS:5182 (Part XVII)		BDL	BDL	BDL

Note: BDL- Below Detectable Limit.

Verified by (B. Ravi Teja) Analyst

Authorized Signatory
(M. Ravi Kiran)
Managing Director

Page 1 of 5

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Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	021
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	2021
Report No.	PLCPL/21/11/VR-01	Method of Sampling	IS: 3025 (Part 01)
Your Ref No.	21000406-OP-46002/SS Date. 12/7/20	021		
Sample particulars	Bore water-4 (At Labour gate) No. of s	amples 1 (One) packed in 2 containe	rs (PVC No.1+Bsgb No.1) each of one liter.
Test required	Color, Odor, Taste, Turbidity, pH, TDS compds, Se, SO4, Tot.Alk, Tot. Hardness Chloramines, Mineral oil, PCB, PAH, T	s, Zn, Cd, CN, Pb, Hg, Mo, Ni, As, To	ne, Fe,Mg,Mn,NO3,Phen t. Chromium, Oil & Greas	se Ag, 5, MBA5, Ba, B,
			Sample Condition	Satisfactory

	ot No.B15 & 16 Sana	(ISO 9) 6, Industrial Es th Nagar, Hyd	TRY OF ENVIRON 1001:2015, 0HSMS IS state, Behind Poll erabad – 500 018 thilabs.com Webs	0 45001:201 ution Cont 3, Tele Fax	8) rol Board, Op : 040-23717	op. Dena Ba 213
		TEST	REPORT			
Issued to Hindustan Petroleum Corpor Visakh Refinery , Malkapuram Visakhapatnam-530 011 Phone No. 0891-2894825/481 Kind attention to Bhukya Ra	18		e.			
Date of Sampling	03 rd November, 202		Date of Receipt		November, 2021 December, 2021	
Date of test performed Report No.	05th to 09th Novemb PLCPL/21/11/VR-01		Date of Reporting Method of Sampling		025 (Part 01)	
Your Ref No.		2/SS Date. 12/7/2021	mediou of Sampling	10.0		
Sample particulars	The state of the s	T-C-C-101-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	les 1 (One) packed in 2 cont	ainers (PVC No.1	+Bsgb No.1) each o	f one liter.
Test required	Color, Odor, Taste, Compds, Se, SO4, Tot	Turbidity of TDS AL	Ca,Cl, Cu,F,Residual free C , Cd, CN, Pb, Hg, Mo, Ni, As	hlorine, Fe,Mg,M s, Tot. Chromium,	n,NO3,Phenolic , Oil & Grease Ag, S,	MBAS, Ba, B,
Sampling Done by		Field in charge, PLCP		Sample Con	dition Sa	atisfactory
Dane		Unit	Method	Result		0 Limits
Paramete	91	153445		<5	Acceptable 5	Permissible 15
Colour		Hazen Units	IS:3025(P04) IS:3025(P05)	Agreeable	Agreeable	Agreeable
Taste		•	IS:3025(P07)	Agreeable	Agreeable	Agreeable
Turbidity		NTU	IS:3025(P10)	1.0 7.8	6.5 to 8.5	NR
pH		mg/l	IS:3025(P11) IS:3025(P16)	924	500	2000
TDS Aluminium (as Al) (Max.)		mg/l	IS:3025(P55)	0.05	0.03	0.2
Ammonia as N		mg/l	IS:3025(P34)	0.1	0.5	0.5
Calcium as Ca		mg/l	IS:3025(P40)	68	75	200
Chlorides as CI (Max.)		mg/l	IS:3025(P32)	185	250	1000
Copper as Cu (Max.)		mg/l	IS:3025(P42)	0.06 1.0	0.05	1.5
Fluorides as F (Max.) Residual free Chlorine		mg/l mg/l	IS:3025(P60) IS:3025(P26)	0.1	0.2	1
Iron (as Fe) (Max.)		mg/l	IS:3025(P53)	0.16	0.3	NR
Magnesium as Mg		mg/l	IS:3025(P46)	24	30	100
Manganese (as Mn)		mg/l	' IS:3025(P59)	0.08	0.1 45	0.3 45
Nitrate as NO ₃		mg/l mg/l	IS:3025(P34) IS:3025(P43)	4.1 Nil	0.001	0.002
Phenolic compounds Selenium (as Se) (Max.)		mg/l	IS:3025(P56)	BDL	0.01	NR
Sulphates as SO ₄	de	mg/l	IS:3025(P24)	86	200	400
T. Alkalinity as CaCO ₃		mg/l	IS:3025(P23) IS:3025(P21)	224 268	200	600
T. Hardness as CaCO ₃	-	mg/l	IS:3025(P49)	3.0	5	15
Zinc (as Zn) (Max.) Cadmium (as Cd) (Max.)		mg/l	IS:3025(P41)	BDL	0.003	NR
Cyanide (as CN) (Max.)		mg/l	IS:3025(P27)	Nil	0.05	NR NR
Lead (as Pb) (Max.)		mg/l	IS:3025(P47) IS:3025(P48)	BDL	0.01	NR NR
Mercury (as Hg) (Max.)		mg/l mg/l	IS:3025(P48)	BDL	0.001	0.07
Molybdenum Nickel as Ni		mg/l	· IS:3025(P54)	BDL	0.02	NR
Total Arsenic (as As) (Max.)		mg/l	IS:3025(P37)	BDL	0.01	0.05
Total Chromium (as Cr+6)		mg/l mg/l	IS:3025(P52) IS:3025(P39)	BDL 0.1	0.05	0.5
Oil and Grease Silver (as Ag)		mg/L	Annex J of IS 13428	BDL	0.1	NR
Sulphide (as S)		mg/L	IS:3025(P29)	BDL	0.05	NR
Anionic detergents as MBAS		mg/L	IS 13428	BDL	0.2	1.0 NR
Barium (as Ba)		mg/L mg/l	Annex F of IS 13428 IS:3025(P57)	0.08 0.01	0.7	NR 1
Boron (as B) (Max.) Chloramines as Cb		mg/l	IS:3025(P26)	BDL	4.0	4.0
Mineral oil		mg/l	· IS:3025(P39)	0.1	0.5	0.5
Polychlorinated biphenyls		mg/l	ASTM 5175	BDL	0.0005	0.0005
Polynuclear Aromatic hydrod Trihalomethanes	carbon as PAH	mg/I	APHA 6440	BDL	0.0001	0.0001
Bromoform		mg/l	APHA 6232	BDL	0.1	0.1
Dibromochloromethane		mg/l mg/l	APHA 6232 APHA 6232	BDL BDL	0.1	0.06
Bromodichloromethane Chloroform		mg/l	APHA 6232	BDL	0.2	0.2
Note: NS - Not Specified in IS	10500, NR- No Relaxation	on Note: Results relate				_
					de	\mathcal{Q}
K. Gayal Analyst Signator	y				Authorized	
	50	CO	PY		(M. Ravi	Kiran)



(LAB RECOGNISED BY MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Issued to
Hindustan Petroleum Corporation Limited
Visakh Refinery ,
Malkapuram
Visakhapatnam-530 011
Phone No. 0891-2894825/4818
Kind attention to Bhukva Raiesh Naik

Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	021
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	021
Report No.	PLCPL/21/11/VR-02	Method of Sampling	IS: 3025 (Part 01)
Your Ref No.	21000406-OP-46002/SS Date. 12/7/20	21		
Sample particulars	Bore water-8 (West of tank 90) No. of	samples 1 (One) packed in 2 containe	ers (PVC No.1+Bsgb No.	1) each of one liter.
Test required	Color, Odor, Taste, Turbidity, pH, TDS compds, Se, SO4, Tot. Alk, Tot. Hardness Chloramines, Mineral oil, PCB, PAH, T	s, Zn, Cd, CN, Pb, Hg, Mo, Ni, As, Tol	ne, Fe,Mg,Mn,NO3,Phen t. Chromium, Oil & Greas	e Ag, S, MBAS, Ba, B,
Sampling Done by	Mr. I. Ramamurthy Field in charge, P	CDI	Sample Condition	Satisfactory

			Decell	IS1050	0 Limits
Parameter	Unit	Method	Result	Acceptable	Permissible
Colour	Hazen Units	' IS:3025(P04)	<5	5	15
Odour	•	IS:3025(P05)	Agreeable	Agreeable	Agreeable
Taste		IS:3025(P07)	Agreeable	Agreeable	Agreeable
Turbidity	NTU	IS:3025(P10)	1.0		
H	7 =	IS:3025(P11)	7.5	6.5 to 8.5	NR
TDS	mg/l	IS:3025(P16)	1005	500	2000
Aluminium (as Al) (Max.)	mg/l	IS:3025(P55)	0.04	0.03	0.2
Ammonia as N	mg/l	IS:3025(P34)	0.12	0.5	0.5
Calcium as Ca	mg/l	IS:3025(P40)	76	75	200
Chlorides as CI (Max.)	mg/l	IS:3025(P32)	190	250	1000
Copper as Cu (Max.)	mg/l	IS:3025(P42)	0.03	0.05	1.5
Fluorides as F (Max.)	mg/l	IS:3025(P60)	1.1	1	1.5
Residual free Chlorine	mg/l	IS:3025(P26)	Nil	0.2	1
Iron (as Fe) (Max.)	mg/l	' IS:3025(P53)	0.2	0.3	NR
Magnesium as Mg	mg/l	IS:3025(P46)	28	30	100
Manganese (as Mn)	mg/l	IS:3025(P59)	0.05	0.1	0.3
Nitrate as NO ₃	mg/l	IS:3025(P34)	2.9	45	45
Phenolic compounds	mg/l	IS:3025(P43)	Nil	0.001	0.002
Selenium (as Se) (Max.)	mg/l	IS:3025(P56)	BDL	0.01	NR
Sulphates as SO ₄	mg/l	IS:3025(P24)	80	200	400
T. Alkalinity as CaCO ₃	mg/l	IS:3025(P23)	232	200	600
T. Hardness as CaCO₃	mg/l	IS:3025(P21)	304	200	600
Zinc (as Zn) (Max.)	mg/l	IS:3025(P49)	2.1	5	15
Cadmium (as Cd) (Max.)	mg/l	' IS:3025(P41)	BDL	0.003	NR
Cyanide (as CN) (Max.)	mg/l	IS:3025(P27)	Nil	0.05	NR
Lead (as Pb) (Max.)	mg/l	IS:3025(P47)	BDL	0.01	NR
Mercury (as Hg) (Max.)	mg/l	IS:3025(P48)	BDL	0.001	NR
Molybdenum	mg/l	IS:3025(P02)	BDL	0.07	0.07
Nickel as Ni	mg/l	IS:3025(P54)	BDL	0.02	NR
Total Arsenic (as As) (Max.)	mg/l	IS:3025(P37)	BDL	0.01	0.05
Total Chromium (as Cr+6)	mg/l	IS:3025(P52)	BDL	0.05	NR
Oil and Grease	mg/l	IS:3025(P39)	0.2	0.5	0.5
Silver (as Ag)	mg/L	Annex J of IS 13428	BDL	0.1	NR
Sulphide (as S)	mg/L	IS:3025(P29)	BDL	0.05	NR
Anionic detergents as MBAS	mg/L	IS 13428	BDL	0.2	1.0
Barium (as Ba)	mg/L	Annex F of IS 13428	0.04	0.7	NR
Boron (as B) (Max.)	mg/l	· IS:3025(P57)	0.01	0.5	1
Chloramines as Cl ₂	mg/l	IS:3025(P26)	BDL	4.0	4.0
Mineral oil	mg/l	IS:3025(P39)	0.1	0.5	0.5
Polychlorinated biphenyls	mg/l	ASTM 5175	BDL	0.0005	0.0005
Polynuclear Aromatic hydrocarbon as PAH	mg/l	APHA 6440	BDL	0.0001	0.0001
Trihalomethanes					
Bromoform	mg/l	APHA 6232	BDL	0.1	0.1
Dibromochloromethane	mg/l	APHA 6232	BDL	0.1	0.1
Bromodichloromethane	mg/l	APHA 6232	BDL	0.06	0.06
Chloroform	mg/l	APHA 6232	BDL	0.2	0.2

Note: NS - Not Specified in IS 10500, NR- No Relaxation Note: Results relate only to the sample tested :BDL-Below Detection (imit

K - Gayathe! Analyst Signatory (K. Gayathri)

(LAB RECOGNISED BY MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Issued to
Hindustan Petroleum Corporation Limited
Visakh Refinery ,
Malkapuram
Visakhapatnam-530 011
Phone No. 0891-2894825/4818

ind attention to Bhukya Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	021
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	021
Report No.	PLCPL/21/11/VR-03	Method of Sampling	IS: 3025 (Part 01)
Your Ref No.	21000406-OP-46002/SS Date. 12/7/202	21		
			0 1-1 IDI IO H- 4	
Sample particulars	liter.	ation) No. of samples 1 (One) packed in	in the second se	
Sample particulars Test required		AI, Ca,CI, Cu,F,Residual free Chlorine, Zn, Cd, CN, Pb, Hg, Mo, Ni, As, Tot. C	Fe.Ma.Mn.NO3,Phenoli	C

Baramatas	440.44	Unit Method	Result	IS10500 Limits	
Parameter	Unit	Method	1775,4550,7-1046	Acceptable	Permissible
Colour	Hazen Units	IS:3025(P04)	<5	5	15
Odour	457	IS:3025(P05)	Agreeable	Agreeable	Agreeable
Taste	-	IS:3025(P07)	Agreeable	Agreeable	Agreeable
Turbidity	NTU	IS:3025(P10)	1.0		
pH		IS:3025(P11)	7.9	6.5 to 8.5	NR
TDS	mg/l	' IS:3025(P16)	872	500	2000
Aluminium (as Al) (Max.)	mg/l	IS:3025(P55)	0.04	0.03	0.2
Ammonia as N	mg/l	IS:3025(P34)	0.1	0.5	0.5
Calcium as Ca	mg/l	IS:3025(P40)	56	75	200
Chlorides as CI (Max.)	mg/l	IS:3025(P32)	145	250	1000
Copper as Cu (Max.)	mg/l	IS:3025(P42)	0.06	0.05	1.5
Fluorides as F (Max.)	mg/l	I\$:3025(P60)	0.9	1	1.5
Residual free Chlorine	mg/l	IS:3025(P26)	0.1	0.2	1
Iron (as Fe) (Max.)	mg/l	IS:3025(P53)	0.18	0.3	NR
Magnesium as Mg	mg/l	IS:3025(P46)	19	30	100
Manganese (as Mn)	mg/l	· IS:3025(P59)	0.05	0.1	0.3
Nitrate as NO ₃	mg/l	IS:3025(P34)	2.8	45	45
Phenolic compounds	mg/l	IS:3025(P43)	Nil	0.001	0.002
Selenium (as Se) (Max.)	mg/l	IS:3025(P56)	BDL	0.01	NR
Sulphates as SO ₄	mg/l	IS:3025(P24)	68	200	400
T. Alkalinity as CaCO ₃	mg/l	IS:3025(P23)	184	200	600
T. Hardness as CaCO ₃	mg/l	IS:3025(P21)	220	200	600
Zinc (as Zn) (Max.)	mg/l	IS:3025(P49)	3.3	5	15
Cadmium (as Cd) (Max.)	mg/l	IS:3025(P41)	BDL	0.003	NR
Cyanide (as CN) (Max.)	mg/l	IS:3025(P27)	Nil	0.05	NR
Lead (as Pb) (Max.)	mg/l	IS:3025(P47)	BDL	0.01	NR
Mercury (as Hg) (Max.)	mg/l	IS:3025(P48)	BDL	0.001	NR
Molybdenum	mg/l	IS:3025(P02)	BDL	0.07	0.07
Nickel as Ni	mg/l	· IS:3025(P54)	BDL	0.02	NR
Total Arsenic (as As) (Max.)	mg/l	IS:3025(P37)	BDL	0.01	0.05
Total Chromium (as Cr+6)	mg/l	IS:3025(P52)	BDL	0.05	NR
Oil and Grease	mg/l	IS:3025(P39)	0.2	0.5	0.5
Silver (as Ag)	mg/L	Annex J of IS 13428	BDL	0.1	NR
Sulphide (as S)	mg/L	IS:3025(P29)	BDL	0.05	NR
Anionic detergents as MBAS	mg/L	IS 13428	BDL	0.2	1.0
Barium (as Ba)	mg/L	Annex F of IS 13428	0.1	0.7	NR
Boron (as B) (Max.)	mg/l	IS:3025(P57)	0.02	0.5	1
Chloramines as Cl ₂	mg/l	IS:3025(P26)	BDL	4.0	4.0
Mineral oil	mg/l	· IS:3025(P39)	0.1	0.5	0.5
Polychlorinated biphenyls	mg/l	ASTM 5175	BDL	0.0005	0.0005
Polynuclear Aromatic hydrocarbon as PAH	mg/l	APHA 6440	BDL	0.0001	0.0001
Trihalomethanes	mg/r	AFTIA 0440	BUL	0.0001	0.0001
111111111111111111111111111111111111111	mg/l	APHA 6232	BDL	0.1	0.1
Bromoform B'base and a second to se	mg/l	APHA 6232	BDL	0.1	0.1
Dibromochloromethane	mg/l	APHA 6232	BDL	0.06	0.06
Bromodichloromethane Chloroform	mg/l	APHA 6232	BDL	0.06	0.00

Note: NS - Not Specified in IS 10500, NR- No Relaxation Note: Results relate only to the sample tested :BDL-Below Detection Limit





(LAB RECOGNISED BY MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Issued to
Hindustan Petroleum Corporation Limited
Visakh Refinery ,
Malkapuram
Visakhapatnam-530 011
Phone No. 0891-2894825/4818

ind attention to Bhukya Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	2021
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	2021
Report No.	PLCPL/21/11/VR-04	Method of Sampling	IS: 3025 (Part 01)
Your Ref No.	21000406-OP-46002/SS Date. 12/7/202			Co-ama
Sample particulars	Bore water-10 (M.O.I) No. of samples 1	(One) packed in 2 containers (PVC No	o.1+Bsgb No.1) each of o	ne liter.
Test required	Color, Odor, Taste, Turbidity, pH, TDS, compds, Se, SO4, Tot. Alk, Tot. Hardness, Chloramines, Mineral oil, PCB, PAH, Tri	Zn, Cd, CN, Pb, Hg, Mo, Ni, As, Tot. C halomethanes	Onformium, Oil & Grease	ng, 0, Mibno, 64, 0,
Sampling Done by	Mr. I. Ramamurthy Field in charge, PLO		Sample Condition	Satisfactory

		Mathad	Result	Paguit IS10500	
Parameter	Unit	Method	Result	Acceptable	Permissible
Colour	Hazen Units	IS:3025(P04)	<5	5	15
Odour		IS:3025(P05)	Agreeable	Agreeable	Agreeable
Taste		IS:3025(P07)	Agreeable	Agreeable	Agreeable
Turbidity	NTU	IS:3025(P10)	1.0		
pH		IS:3025(P11)	7.4	6.5 to 8.5	NR
TDS	mg/l	IS:3025(P16)	816	500	2000
Aluminium (as Al) (Max.)	mg/l	IS:3025(P55)	0.02	0.03	0.2
Ammonia as N	mg/l	IS:3025(P34)	0.2	0.5	0.5
Calcium as Ca	mg/l	IS:3025(P40)	64	75	200
Chlorides as CI (Max.)	mg/l	IS:3025(P32)	125	250	1000
Copper as Cu (Max.)	mg/l	, IS:3025(P42)	0.03	0.05	1.5
Fluorides as F (Max.)	mg/l	IS:3025(P60)	1.0	1	1.5
Residual free Chlorine	mg/l	IS:3025(P26)	Nil	0.2	1
Iron (as Fe) (Max.)	. mg/l	IS:3025(P53)	0.2	0.3	NR
Magnesium as Mg	mg/l	IS:3025(P46)	10	30	100
Manganese (as Mn)	mg/l	IS:3025(P59)	0.03	0.1	0.3
Nitrate as NO ₃	mg/l	IS:3025(P34)	3.1	45	45
Phenolic compounds	mg/l	IS:3025(P43)	Nil	0.001	0.002
Selenium (as Se) (Max.)	mg/l	IS:3025(P56)	BDL	0.01	NR
Sulphates as SO ₄	mg/l	IS:3025(P24)	54	200	400
T. Alkalinity as CaCO ₃	mg/l	IS:3025(P23)	172	200	600
T. Hardness as CaCO ₃	mg/l	IS:3025(P21)	204	200	600
Zinc (as Zn) (Max.)	mg/l	IS:3025(P49)	2.1	5	15
Cadmium (as Cd) (Max.)	mg/l	IS:3025(P41)	BDL	0.003	NR
Cyanide (as CN) (Max.)	mg/l	IS:3025(P27)	Nil	0.05	NR
Lead (as Pb) (Max.)	mg/l	IS:3025(P47)	BDL	0.01	NR
Mercury (as Hg) (Max.)	mg/l	IS:3025(P48)	BDL	0.001	NR
Molybdenum	mg/l	IS:3025(P02)	BDL	0.07	0.07
Nickel as Ni	mg/l	IS:3025(P54)	BDL	0.02	NR
Total Arsenic (as As) (Max.)	mg/l	IS:3025(P37)	BDL	0.01	0.05
Total Chromium (as Cr+6)	mg/l	IS:3025(P52)	BDL	0.05	NR
Oil and Grease	mg/l	IS:3025(P39)	0.1	0.5	0.5
Silver (as Ag)	mg/L	Annex J of IS 13428	BDL	0.1	NR
Sulphide (as S)	mg/L	IS:3025(P29)	BDL	0.05	NR
Anionic detergents as MBAS	mg/L	IS 13428	BDL	0.2	1.0
Barium (as Ba)	mg/L	Annex F of IS 13428	0.1	0.7	NR
Boron (as B) (Max.)	mg/l	IS:3025(P57)	0.03	0.5	1
Chloramines as Cl ₂	mg/l	IS:3025(P26)	BDL	4.0	4.0
Mineral oil	mg/l	IS:3025(P39)	0.1	0.5	0.5
Polychlorinated biphenyls	mg/l	ASTM 5175	BDL	0.0005	0.0005
Polynuclear Aromatic hydrocarbon as PAH	mg/l	APHA 6440	BDL	0.0001	0.0001
Trihalomethanes	K STATE OF THE STA				
Bromoform	mg/l	APHA 6232	BDL	0.1	0.1
Dibromochloromethane	mg/l	APHA 6232	BDL	0.1	0.1
Bromodichloromethane	mg/l	APHA 6232	BDL	0.06	0.06
Chloroform	mg/l	APHA 6232	BDL	0.2	0.2

Note: NS - Not Specified in IS 10500, NR- No Relaxation Note: Results relate only to the sample tested :BDL-Below Detection Limit

K. Gayatlu Analyst Signatory (K. Gayathri)

(LAB RECOGNISED BY MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad - 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Issued to Hindustan Petroleum Corporation Limited Visakh Refinery, Malkapuram Visakhapatnam-530 011

Phone No. 0891-2894825/4818 Kind attention to Bhukya Rajes

Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	021
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	021
Report No.	PLCPL/21/11/VR-05	Method of Sampling	IS: 3025 (Part 01)
Your Ref No.	21000406-OP-46002/SS Date. 12/7/20	021		
Sample particulars	Bore water-20 (South West point of slu	udge pond) No. of samples 1 (One) p	acked in 2 containers (P	VC No.1+Bsgb No.1) each o
	one liter.			
Test required	Color, Odor, Taste, Turbidity, pH, TDS compds,Se,SO4,Tot.Alk,Tot. Hardness Chloramines, Mineral oil, PCB, PAH, T	s, Zn, Cd, CN, Pb, Hg, Mo, Ni, As, To	ine, Fe,Mg,Mn,NO3,Phe t. Chromium, Oil & Grea	nolic Ise Ag, S, MBAS, Ba, B,

	11.11	Panell		0 Limits
Unit		1 (2.22.2.000)	Acceptable	Permissible
Hazen Units	· IS:3025(P04)	<5	5	15
-	IS:3025(P05)	Agreeable	Agreeable	Agreeable
	IS:3025(P07)	Agreeable	Agreeable	Agreeable
· NTU	IS:3025(P10)	1.0		
-	IS:3025(P11)	6.9		NR
mg/l	IS:3025(P16)	922		2000
mg/l	IS:3025(P55)	0.04		0.2
mg/l	IS:3025(P34)	0.4	0.5	0.5
mg/l	IS:3025(P40)	74		200
mg/l	IS:3025(P32)	115		1000
mg/l	. IS:3025(P42)	0.05		1.5
mg/l	IS:3025(P60)	0.8	1	1.5
mg/l	IS:3025(P26)	Nil	0.2	11
mg/l	IS:3025(P53)	0.14	0.3	NR
mg/l	IS:3025(P46)	7.7	30	100
mg/l	IS:3025(P59)	0.01	0.1	0.3
mg/l	IS:3025(P34)	1.8	45	45
mg/l	IS:3025(P43)	Nil	0.001	0.002
mg/l	IS:3025(P56)	BDL	0.01	NR
mg/l	IS:3025(P24)	59	200	400
	IS:3025(P23)	184	200	600
	IS:3025(P21)	216	200	600
mg/l	IS:3025(P49)	2.9	5	15
mg/l	. IS:3025(P41)	BDL	0.003	NR
mg/l	IS:3025(P27)	Nil	0.05	NR
mg/l	IS:3025(P47)			NR
. mg/l	IS:3025(P48)			NR
mg/l	IS:3025(P02)	BDL		0.07
mg/l	IS:3025(P54)			NR
mg/l	IS:3025(P37)	BDL		0.05
mg/l	IS:3025(P52)	BDL	0.05	NR
mg/l	IS:3025(P39)	0.1	0.5	0.5
mg/L	Annex J of IS 13428	BDL	0.1	NR
mg/L	, IS:3025(P29)	BDL	0.05	NR
mg/L	IS 13428	BDL	0.2	1.0
mg/L	Annex F of IS 13428	0.07	0.7	NR
mg/l	IS:3025(P57)	0.04	0.5	1
mg/l	IS:3025(P26)	BDL	4.0	4.0
mg/l	IS:3025(P39)	0.2	0.5	0.5
mg/l	ASTM 5175	BDL	0.0005	0.0005
	APHA 6440	BDL	0.0001	0.0001
gii				
ma/l	APHA 6232	BDL	0.1	0.1
		BDL	0.1	0.1
		BDL	0.06	0.06
mg/l	APHA 6232	BDL	0.2	0.2
	- NTU - mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	Hazen Units - IS:3025(P04) - IS:3025(P05) - IS:3025(P07) - NTU IS:3025(P10) - IS:3025(P11) - IS:3025(P11) - IS:3025(P16) - IS:3025(P16) - IS:3025(P16) - IS:3025(P46) - IS:3025(P40) - IS:3025(P40) - IS:3025(P40) - IS:3025(P42) - IS:3025(P42) - IS:3025(P42) - IS:3025(P42) - IS:3025(P42) - IS:3025(P42) - IS:3025(P46) - IS:3025(P41) - IS:3025(P41) - IS:3025(P24) - IS:3025(P24) - IS:3025(P24) - IS:3025(P24) - IS:3025(P27) - IS:3025(P47) - IS:3025(P47) - IS:3025(P47) - IS:3025(P48) - IS:3025(P47) - IS:3025(P48) - IS:3025(P47) - IS:3025(P48) - IS:3025(P47) - IS:3025(P37) - IS:3025(P37) - IS:3025(P37) - IS:3025(P39) - IS:	Hazen Units	Unit Method Result Acceptable

Note: NS - Not Specified in IS 10500, NR- No Relaxation Note: Results relate only to the sample tested :BDL-Below Detection Limit

K. Gayathu! Analyst Signatory (K. Gayathri)

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(LAB RECOGNISED BY MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

Issued to
Hindustan Petroleum Corporation Limited
Visakh Refinery ,
Malkapuram
Visakhapatnam-530 011
Phone No. 0891-2894825/4818

Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	
Report No.	PLCPL/21/11/VR-06	Method of Sampling	IS: 3025 (Part 01)
Your Ref No.	21000406-OP-46002/SS Date. 12/7/202	21 '		
Sample particulars	Bore water-21 (East of Centrifuge ETP	-2) No. of samples 1 (One) packed in 2	containers (PVC No.1+t	ssgb No.1) each of one lite
Sample particulars Test required	Bore water-21 (East of Centrifuge ETP Color, Odor, Taste, Turbidity, pH, TDS, compds, Se, SO4, Tot. Alk, Tot. Hardness, Chloramines, Mineral oil, PCB, PAH, Tr	Al, Ca,Cl, Cu,F,Residual free Chlorine, Zn, Cd, CN, Pb, Hg, Mo, Ni, As, Tot. C ihalomethanes	Fe Ma Mn.NO3.Phenoli	C

2 - AVERAGE - 1974	WE 2000	Method	Desuit	IS10500 Limits	
Parameter	Unit Method		Result	Acceptable	Permissible
Colour	Hazen Units	IS:3025(P04)	<5	5	15
Odour		IS:3025(P05)	Agreeable	Agreeable	Agreeable
Taste		IS:3025(P07)	Agreeable	Agreeable	Agreeable
Turbidity	NTU	IS:3025(P10)	1.0		
pH		IS:3025(P11)	7.0	6.5 to 8.5	NR
TDS	mg/l	IS:3025(P16)	1048	500	2000
Aluminium (as Al) (Max.)	mg/l	IS:3025(P55)	0.01	0.03	0.2
Ammonia as N	mg/l	IS:3025(P34)	0.2	0.5	0.5
Calcium as Ca	mg/l	IS:3025(P40)	80	75	200
Chlorides as CI (Max.)	mg/l	IS:3025(P32)	120	250	1000
Copper as Cu (Max.)	mg/l	IS:3025(P42)	0.03	0.05	1.5
Fluorides as F (Max.)	mg/l	IS:3025(P60)	0.9	1	1.5
Residual free Chlorine	mg/l	. IS:3025(P26)	Nil	0.2	1
Iron (as Fe) (Max.)	mg/l	IS:3025(P53)	0.18	0.3	NR
Magnesium as Mg	mg/l	IS:3025(P46)	7.7	30	100
Manganese (as Mn)	. mg/l	IS:3025(P59)	0.04	0.1	0.3
Nitrate as NO ₃	mg/l	IS:3025(P34)	1.5	45	45
Phenolic compounds	mg/l	IS:3025(P43)	Nil	0.001	0.002
Selenium (as Se) (Max.)	mg/l	IS:3025(P56)	BDL	0.01	NR
Sulphates as SO ₄	mg/l	IS:3025(P24)	64	200	400
T. Alkalinity as CaCO ₃	mg/l	IS:3025(P23)	200	200	600
T. Hardness as CaCO ₃	mg/l	IS:3025(P21)	232	200	600
Zinc (as Zn) (Max.)	mg/l	. IS:3025(P49)	3.1	5	15
Cadmium (as Cd) (Max.)	mg/l	IS:3025(P41)	BDL	0.003	NR
Cyanide (as CN) (Max.)	mg/l	IS:3025(P27)	Nil	0.05	NR
Lead (as Pb) (Max.)	mg/l	IS:3025(P47)	BDL	0.01	NR
Mercury (as Hg) (Max.)	mg/l	IS:3025(P48)	BDL	0.001	NR
Molybdenum	mg/l	IS:3025(P02)	BDL	0.07	0.07
Nickel as Ni	mg/l	IS:3025(P54)	BDL	0.02	NR
Total Arsenic (as As) (Max.)	mg/l	IS:3025(P37)	BDL	0.01	0.05
Total Chromium (as Cr+6)	mg/l	IS:3025(P52)	BDL	0.05	NR
Oil and Grease	mg/l	IS:3025(P39)	0.1	0.5	0.5
Silver (as Ag)	mg/L	Annex J of IS 13428	BDL	0.1	NR
Sulphide (as S)	mg/L	IS:3025(P29)	BDL	0.05	NR
Anionic detergents as MBAS	mg/L	IS 13428	BDL	0.2	1.0
Barium (as Ba)	mg/L	Annex F of IS 13428	0.03	0.7	NR
Boron (as B) (Max.)	mg/l	IS:3025(P57)	0.02	0.5	1
Chloramines as Cl ₂	mg/l	IS:3025(P26)	BDL	4.0	4.0
Mineral oil	mg/l	IS:3025(P39)	0.1	0.5	0.5
Polychlorinated biphenyls	mg/l	ASTM 5175	BDL	0.0005	0.0005
Polynuclear Aromatic hydrocarbon as PAH	mg/l	APHA 6440	BDL	0.0001	0.0001
Trihalomethanes					
	mg/l	APHA 6232	BDL	0.1	0.1
Bromoform D''s and less methods	mg/l	APHA 6232	BDL	0.1	0.1
Dibromochloromethane	mg/l	APHA 6232	BDL	0.06	0.06
Bromodichloromethane Chloroform	mg/l	APHA 6232	BDL	0.2	0.2

Note: NS - Not Specified in IS 10500, NR- No Relaxation Note: Results relate only to the sample tested :BDL-Below Detection Line

K. Gayathri)

(ISO 9001:2015, OHSMS ISO 45001:2018)

Plot No.B15 & 16, Industrial Estate, Behind Pollution Control Board, Opp. Dena Bank, Sanath Nagar, Hyderabad – 500 018, Tele Fax: 040-23717213 E-mail:info@pragathilabs.com Website: www.pragathilabs.com

TEST REPORT

<u>Issued to</u>
Hindustan Petroleum Corporation Limited
Visakh Refinery ,
Malkapuram
Visakhapatnam-530 011

Phone No. 0891-2894825/4818

ind attention to Bhukya Date of Sampling	03rd November, 2021	Date of Receipt	05th November, 2	
Date of test performed	05th to 09th November, 2021	Date of Reporting	10th December, 2	021
Report No.	PLCPL/21/11/VR-07	Method of Sampling	IS: 3025 (Part 01)	
Your Ref No.	21000406-OP-46002/SS Date. 12/7/202	21		
Sample particulars	Bore water-18 (Chemical House) No. of	samples 1 (One) packed in 2 container	rs (PVC No.1+Bsgb No.1) each of one liter.
Test required	Color, Odor, Taste, Turbidity, pH, TDS compds,Se,SO4,Tot.Alk,Tot. Hardness, Chloramines, Mineral oil, PCB, PAH, Tr	Zn, Cd, CN, Pb, Hg, Mo, Ni, As, Tol. C	Fe,Mg,Mn,NO3,Phenoli Chromium, Oil & Grease	Ag, S, MBAS, Ba, B,
			Sample Condition	

Weller Charles (Paris)		Method	Decul	IS10500 Limits	
Parameter	Unit	. Method	Result	Acceptable	Permissible
0.1	Hazen Units	IS:3025(P04)	<5	5	15
Colour	-	IS:3025(P05)	Agreeable	Agreeable	Agreeable
Odour		IS:3025(P07)	Agreeable	Agreeable	Agreeable
Taste	NTU	IS:3025(P10)	1.0		
Turbidity	-	IS:3025(P11)	7.0	6.5 to 8.5	NR
pH	mg/l	IS:3025(P16)	1114	500	2000
TDS	mg/l	IS:3025(P55)	0.02	0.03	0.2
Aluminium (as Al) (Max.)	mg/l	IS:3025(P34)	0.3	0.5	0.5
Ammonia as N	mg/l	IS:3025(P40)	81	75	200
Calcium as Ca	mg/l	IS:3025(P32)	125	250	1000
Chlorides as CI (Max.)		IS:3025(P42)	0.04	0.05	1.5
Copper as Cu (Max.)	mg/l mg/l	IS:3025(P60)	1.0	1	1.5
Fluorides as F (Max.)		· IS:3025(P26)	Nil	0.2	1
Residual free Chlorine	mg/l	IS:3025(P53)	0.2	0.3	NR
Iron (as Fe) (Max.)	mg/l	IS:3025(P46)	8.7	30	100
Magnesium as Mg	mg/l	IS:3025(P59)	0.05	0.1	0.3
Manganese (as Mn)	mg/l	IS:3025(P34)	1.9	45	45
Nitrate as NO₃	mg/l	IS:3025(P43)	Nil	0.001	0.002
Phenolic compounds	mg/l	IS:3025(P56)	BDL	0.01	NR
Selenium (as Se) (Max.)	mg/l	IS:3025(P24)	68	200	400
Sulphates as SO ₄	mg/l	IS:3025(P23)	212	200	600
T. Alkalinity as CaCO ₃	mg/l	IS:3025(P23)	240	200	600
T. Hardness as CaCO ₃	mg/l	, IS:3025(P49)	3.5	5	15
Zinc (as Zn) (Max.)	mg/l	IS:3025(P41)	BDL	0.003	NR
Cadmium (as Cd) (Max.)	mg/l	IS:3025(P27)	Nil	0.05	NR
Cyanide (as CN) (Max.)	mg/l	IS:3025(P47)	BDL	0.01	NR
Lead (as Pb) (Max.)	mg/l	IS:3025(P48)	BDL	0.001	NR
Mercury (as Hg) (Max.)	mg/l	IS:3025(P02)	BDL	0.07	0.07
Molybdenum	mg/l		BDL	0.02	NR
Nickel as Ni	mg/l	IS:3025(P54)	BDL	0.01	0.05
Total Arsenic (as As) (Max.)	mg/l	IS:3025(P37)	BDL	0.05	NR
Total Chromium (as Cr+6)	mg/l	IS:3025(P52)	0.1	0.5	0.5
Oil and Grease	mg/l	IS:3025(P39)	BDL	0.1	NR
Silver (as Ag)	mg/L	Annex J of IS 13428	BDL	0.05	NR.
Sulphide (as S)	mg/L	IS:3025(P29)	BDL	0.03	1.0
Anionic detergents as MBAS	mg/L	IS 13428	0.05	0.7	NR
Barium (as Ba)	mg/L	. Annex F of IS 13428	0.03	0.7	1
Boron (as B) (Max.)	mg/l	IS:3025(P57)	BDL	4.0	4.0
Chloramines as Cl ₂	mg/l	IS:3025(P26)	0.2	0.5	0.5
Mineral oil	mg/l	IS:3025(P39)	BDL.	0.0005	0.0005
Polychlorinated biphenyls	mg/l	ASTM 5175		0.0005	0.0003
Polynuclear Aromatic hydrocarbon as PAH	mg/l	APHA 6440	BDL	0.0001	0.0001
Trihalomethanes			DDI	0.1	0.1
Bromoform	mg/l	'APHA 6232	BDL	0.1	0.1
Dibromochloromethane	mg/l	APHA 6232	BDL	0.06	0.06
Bromodichloromethane	mg/l	APHA 6232	BDL	0.06	0.00
Chloroform	mg/l	. APHA 6232	BDL	0.2	0.2

Note: NS – Not Specified in IS 10500, NR- No Relaxation Note: Results relate only to the sample tested :BDL-Below Detection Limit

K. Gayatlus Analyst Signatory (K. Gayathri)

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(ISO 45001:2018, OHSAS 18001:2007)

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TEST REPORT

Issued to

ABS - PRAGATHI LABS - PRAGATHI LA

Chief Manager-Technical M/s. Hindustan Petroleum Corporation Ltd. Visakh Refinery Malkapuram Visakhapatnam – 530 011 Andhra Pradesh

Kind attention to: Sri Gudala Bhagavan

Date of Monitoring	15 th Novemmber, 2021		
P.O. No.	20000433-HB/PR200066- HP/LOA/AG	Report No.	Pra/Env/HPCL/21-22/10/N01 to N03
Sample particulars	Noise, No. of samples:3 (Thr	ee)	
Instruments used	Model No. SL -4001/I.55417 Make: Aero Vironment Engin		13.08.2021
Test required	Recording Noise Levels		
Method of analysis	IS: 9989	Page No.	1 of 1

RESULTS

_		Equivalent Levels dB (A)		
S. No.	Locations	Day Time (L _d) (6 am to 10pm)	Night Time (L _n) (10pm to 6 am)	
1	1m distance away from South Gate	69	57	
2	1m distance away from Store Yard	66	54	
3	1m distance away from HLPH	64	52	

NOISE QUALITY STANDARDS IN RESPECT OF NOISE

	0	Limits	in dB(A)
Area Code	Category of Area	Day Time	Night Time
Α	Industrial Area	75	70
В	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Analyst Signatory (MD. Azeem)



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TEST REPORT

Issued to

Chief Manager-Technical M/s. Hindustan Petroleum Corporation Ltd. Visakh Refinery Malkapuram Visakhapatnam - 530 011 Andhra Pradesh

Kind attention to: Sri Gudala Bhagavan

Date of Monitoring	12th November 2021	Date of Reporting	08th December, 2021	
P.O. No.	20000433-HB/PR200066- HP/LOA/AG	Report No.	Pra/Env/HPCL/21-22/11/N01 to N03	
Sample particulars	Noise, No. of samples:3 (Three)			
Instruments used	Model No. SL -4001/I.55417 Make: Aero Vironment Engin	eers Inc. Due Date: 13.	08.2022	
Test required	Recording Noise Levels			
Method of analysis	IS: 9989	Page No.	1 of 1	

RESULTS

12		Equivalent Levels dB (A)		
S. No.	Locations	Day Time (L _d) (6 am to 10pm)	Night Time (L _n) (10pm to 6 am)	
1	1m distance away from South Gate	67	56	
2	1m distance away from Store Yard	64	52	
3	1m distance away from HLPH	63	51	

NOISE QUALITY STANDARDS IN RESPECT OF NOISE

		Limits in dB(A)	
Area Code	Category of Area	Day Time	Night Time
Α.	Industrial Area	75	70
R	Commercial Area	65	55
C	Residential Area	55	45
0	Silence Zone	50	40

and Age **Analyst Signatory** (MD.Azeem)

Authorized Signatory (M. Ravi Kiran)

End of the Report

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sued	<u>l to</u> Manager-	Techn	ical	840				
/s. H sakh alka sakh ndhr	industan Refinery puram napatnam a Pradesh	Petrol – 530 1	eum Corporation Ltd.	e e				
ate	of Monitor	ing	10th December 2021	Date of	Reporting	04th Ja	nuary, 2022	
P.O. No.		_	20000433-HB/PR200066- HP/LOA/AG	Report I	No.	Pra/En to N03	v/HPCL/21-22/12/N01	
Samo	le particul	ars	Noise, No. of samples:3 (Thi					
	ments us		Model No. St4001/I.55417		io Doto: 12 /	18 2021		
		-	Make: Aero Vironment Engir Recording Noise Levels	ieers inc. Di	ie Date: 13.0	JU.ZUZ I		
_	equired od of analy	/eie	IS: 9989	Page No).	1 of 1		
eui(ou or arral)	010		SULTS				
	,		KE	JULIS		-ut l	ole dP (A)	
S.			Locations	Da	Equival y Time (L _d)		els dB (A) Night Time (L _n)	
No.			Locations		(6 am to 10pm)		(10pm to 6 am)	
1	1m dista	ince a	way from South Gate	1	64		53	
2			way from Store Yard	3.	62		51	
3	1m dista	nce a	way from HLPH		61		50	
			NOISE QUALITY STANDA	ARDS IN PI	ESPECT O	F NOIS	E	
		Т				Limit	s in dB(A)	
Area Code			Category of Area		Day T		Night Time 70	
Ar	B	-	ustrial Area mmercial Area		75 65		55	
Are	C		sidential Area		55		45	
Art	D	Sile	ence Zone		50)	40	
Art	nent						Authorized Signatory (M. Ravi Kiran)	
o. Calyst	Signatory zeem)			Сору			Page 5 of	f 5

200		Equivalent Levels dB (A)		
S. No.	Locations	Day Time (L _d) (6 am to 10pm)	Night Time (L _n) (10pm to 6 am)	
1	1m distance away from South Gate	64	53	
2	1m distance away from Store Yard	. 62	51	
3	1m distance away from HLPH	61	50	

		Limits in dB(A)	
Area Code	Category of Area	Day Time	Night Time
A	Industrial Area	75	70
В	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

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TEST REPORT

Issued to

Chief Manager-Technical M/s. Hindustan Petroleum Corporation Ltd. Visakh Refinery Malkapuram Visakhapatnam – 530 011 Andhra Pradesh

Kind attention to: Srl Gudala Bhagavan

Date of Monitoring	07 th January 2022	Date of Reporting	02 nd February, 2022	
P.O. No.	20000433-HB/PR200066- HP/LOA/AG	Report No.	Pra/Env/HPCL/22/01/N01 to N03	
Sample particulars	Noise, No. of samples:3 (Three)			
Instruments used	Model No. SL -4001/I.55417 Make: Aero Vironment Engin	eers Inc. Due Date: 13.0	08.2021	
Test required	Recording Noise Levels			
Method of analysis	IS: 9989	Page No.	1 of 1	

RESULTS

		Equivalent Levels dB (A)		
S. No.	Locations	Day Time (L _d) (6 am to 10pm)	Night Time (L _n) (10pm to 6 am)	
1	1m distance away from South Gate	67	56	
2	1m distance away from Store Yard	63	54	
3	1m distance away from HLPH	60	52	

NOISE QUALITY STANDARDS IN RESPECT OF NOISE

Area Code	Cotogony of Area	Limits in dB(A)	
	Category of Area	Day Time	Night Time
A	Industrial Area	75	70
В	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Analyst Signatory (MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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TEST REPORT

Issued to

Chief Manager-Technical M/s. Hindustan Petroleum Corporation Ltd. Visakh Refinery Malkapuram Visakhapatnam – 530 011 Andhra Pradesh

Kind attention to: Sri Gudala Bhagavan

Date of Monitoring	11th February 2022	Date of Reporting	03rd March, 2022
P.O. No.	20000433-HB/PR200066- HP/LOA/AG	Report No.	Pra/Env/HPCL/22/02/N01 to N03
Sample particulars	Noise, No. of samples:3 (Thr	ee)	
Instruments used	Model No. SL -4001/I.55417 Make: Aero Vironment Engin	eers Inc. Due Date: 13.	08.2022
Test required	Recording Noise Levels		
Method of analysis	IS: 9989	Page No.	1 of 1

RESULTS

_		Equivalent Levels dB (A)		
S. No.	Locations	Day Time (L _d) (6 am to 10pm)	Night Time (L _n) (10pm to 6 am)	
1	1m distance away from South Gate	68	59	
2	1m distance away from Store Yard	64	55	
3	1m distance away from HLPH	63	56	

NOISE QUALITY STANDARDS IN RESPECT OF NOISE

1 01-	0.4	Limits in dB(A)	
Area Code	Category of Area	Day Time	Night Time
A	Industrial Area	75	70
В	Commercial Area	65	55
С	Residential Area	55	45
D	Silence Zone	50	40

Analyst Signatory (MD. Azeem)

Authorized Signatory (M. Ravi Kiran)

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TEST REPORT

Issued to

Chief Manager-Technical M/s. Hindustan Petroleum Corporation Ltd. Visakh Refinery Malkapuram Visakhapatnam – 530 011 Andhra Pradesh

Kind attention to: Sri Gudala Bhagavan

Date of Monitoring	11th March, 2022	Date of Reporting	04th April, 2022		
P.O. No.	20000433-HB/PR200066- HP/LOA/AG	Report No.	Pra/Env/HPCL/22/03/N01 to N03		
Sample particulars	Noise, No. of samples:3 (Three)				
Instruments used	Model No. SL -4001/I.55417 Make: Aero Vironment Engineers Inc. Due Date: 13.08.2022				
Test required	Recording Noise Levels				
Method of analysis	IS: 9989	Page No.	1 of 1		

RESULTS

S.	A PARTY IN THE PAR	Equivalent Levels dB (A)		
No.	Locations	Day Time (L _d) (6 am to 10pm)	Night Time (L _n) (10pm to 6 am)	
1	1m distance away from South Gate	70	52	
2	1m distance away from Store Yard	65	56	
3	1m distance away from HLPH	64	55	

NOISE QUALITY STANDARDS IN RESPECT OF NOISE

Area Code	Category of Area	Limits in dB(A)	
Alea Code		Day Time	Night Time
Α	Industrial Area	75	70
В	Commercial Area	65	55
С	Residential Area	55	45
D	Silence Zone	50	40

Verified by (B. Ravi Teja) Analyst

Authorized Signatory (M. Ravi Kiran) Managing Director