CoOrdinator Chd

From:	Environment Team
Sent:	27 May 2025 15:17
To:	eccompliance-nro@gov.in
Cc:	narendersharma.cpcb@gov.in; ronz.chd-mef@nic.in; seezobti@gmail.com; eerobti@yahoo.in; CoOrdinator Chd; Ravi Deshwal; Jatinder Kumar1
Subject:	Six Monthly EC Compliance Report of GGSR from Oct'24 to Mar'25
Attachments:	Six monthly EC compliance repoert_Oct'24 to Mar'25_GGSR.pdf

To,
The Director,
Ministry of Environment, Forest & Climate Change,
Northern Regional Office,
Bays No. 24-25, Sector 31-A,
Dakshin Marg,
Chandigarh – 160 030.

Subject: Six Monthly EC Compliance Report (from (Oct'24 to Mar'25) of Guru Gobind Singh Refinery **at Phullokhari, Bathinda District, Punjab.**

Ref: Environmental Clearance No. J-11011/24/98-IA II (dated 6th November, 1998
Environmental Clearance No. J-11011/27512007-IA II (I) date 16th July 2007
Environmental Clearance: F. No.: J-11011/275/2007 IA II (I) date 22nd June 2015 and
Environmental Clearance: F. No. J-11011/386/2016-IA-II (I) dated 7th August 2018

Dear Sir,

Please find enclosed six monthly EC compliance report (Oct'24 to Mar'25) of Guru Gobind Singh Refinery (along with Annexures) on the environmental conditions stipulated by MoEF&CC.

Thanks & Regards,
Environment Team,
Guru Gobind Singh refinery
Bathinda.

received by
Jagjeet
06/06/25

HMEL

Date: 27th May,2025
Ref: HMEL-OE-40-ENV 1240

To,
The Director,
Ministry of Environment, Forest & Climate Change,
Northern Regional Office,
Bays No. 24-25, Sector 31-A,
Dakshin Marg, Chandigarh – 160 030.

Subject: Six Monthly EC Compliance Report (from Oct'24 to Mar'25) for Guru Gobind Singh Refinery at Phullokhari, Bathinda District, Punjab.

Ref: Environmental Clearance No. J-11011/24/98-IA II (dated 6th November 1998
Environmental Clearance No. J-11011/27512007-IA II (I) date 16th July 2007
Environmental Clearance: F. No.: J-11011/275/2007 IA II (I) date 22nd June 2015 and
Environmental Clearance: F. No. J-11011/386/2016-IA-II (I) dated 7th August 2018

Dear Sir,

Please find enclosed six-monthly EC compliance report (from Oct'24 to Mar'25) of Guru Gobind Singh Refinery (along with Annexures) on the environmental conditions stipulated by MoEF&CC.

Thanking you,

Very Truly Yours,

Jatinder Kumar
(DM-Operational Excellence)

Cc: Regional Director, Central Pollution Control Board, First Floor, PIC-UP Building, Vibuti Khand, Gomtinagar, Lucknow, UP, Pin Code-226010 (India).
Cc: Punjab Pollution Control Board, Zonal Office, Street No. 12, Power House Road, Bathinda, Punjab.
Cc: Punjab Pollution Control Board, Regional Office, Bathinda.

Enclosure: Six monthly EC compliance report
Annexure-I: Online continuous ambient air quality monitoring data.
Annexure-II: Ambient noise quality monitoring reports
Annexure-III: Social upliftment activities are carried out in the nearby village.
Annexure-IV: Acknowledgement copy of the last six-month EC compliance report submitted to MoEF&CC, Regional Office, Chandigarh. For the period of Apr'24 to Sep'24.
Annexure-V: Stack emission monitoring data.
Annexure-VI: Effluent analysis reports and ground water reports
Annexure-VII: Online data of ETP parameters
Annexure-VIII: Activities undertaken for improving the socio-economic conditions of the surrounding villages.
Annexure-IX: Eco-developmental measures including community welfare measures in the project area.
Annexure-X: Copy of Air CTO and Water CTO (Consent to Operate), Valid till 30.09.2025.
Annexure-XI: CER plan for the BS-VI Fuel Quality Up-gradation Project.
Annexure-XII: Copy of the advertisement publishing the accordance of Environmental Clearance by MoEF&CC.

ENVIRONMENT CLEARANCE COMPLIANCE

&

MONITORING REPORTS

Six Monthly EC Compliance Report

(Oct'2024 to Mar'2025)

Guru Gobind Singh refinery

(HPCL-Mittal Energy Limited)

Village: Phullokhari,

Distt. Bathinda-151301

Bathinda (Punjab), India

ENCLOSURE

EC for 9 MMTPA Grass Root Refinery Project (Guru Gobind Singh Refinery).

(Ref. Letter No. J-11011/24/98-IA II, dated 6th November, 1998)

I. SPECIFIC CONDITIONS:

<table>
<tr><th>Sr. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td>i.</td><td>No construction of the Refinery Project shall be undertaken till environmental clearance for the linked proposal viz. Captive Power Plant, COT and Crude Oil Pipeline and SPM are accorded by this Ministry.</td><td>Complied with.</td></tr>
<tr><td>ii.</td><td>The gaseous emissions (SO_2, NO_X, HC, CO) and particulate matters, from various process units should conform to the standards prescribed by the concerned authorities from time to time. The total SO_2 emission from the refinery including power plant shall not exceed 1000 kg/hr (maximum). At no time, the emission level should go beyond the stipulated standards. In the event of failure of pollution control systems (s) adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency</td><td>Being complied with regularly.
All process units are designed to ensure that gaseous emissions and total SO_2 emissions are within the standards prescribed by the CPCB.</td></tr>
<tr><td>iii.</td><td>Sulphur recovery units with more than 99% efficiency shall be provided.</td><td>Complied with.
Sulphur Recovery Unit (SRU) with >99.9% wt. recovery of Sulphur has been installed. Month-wise details are as follows:
<table><tr><th>Month</th><th>Sulphur Recovery (in %)</th></tr><tr><td>Oct’24</td><td>99.99</td></tr><tr><td>Nov’24</td><td>99.99</td></tr><tr><td>Dec’24</td><td>99.98</td></tr><tr><td>Jan’25</td><td>99.98</td></tr><tr><td>Feb’25</td><td>99.98</td></tr><tr><td>Mar’25</td><td>99.98</td></tr></table></td></tr>
<tr><td>iv.</td><td>A minimum of five Ambient Air Quality Monitoring Stations should be set up and around the refinery area</td><td>Complied with.</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td></td><td>based on the micro meteorological conditions as well as where maximum ground level concentration of SPM, SO_x, NO_x , HC and RPM are anticipated in consultation with the State Pollution Control Board . In addition, a mobile van with adequate facilities to monitor ambient air quality outside the refinery premised should be provided.</td><td>Five (5) nos. of continuous ambient air quality monitoring stations have been set up inside GGSR in consultation with regulatory body.
Subsequently, we have a mobile van with adequate facilities to monitor ambient air quality outside the refinery premises. Month wise data of ambient air quality is attached as Annexure-I.</td></tr>
<tr><td>v.</td><td>Fugitive emission of HC from product storage tank yard, crude oil tanks etc. must be regularly monitored. Sensors for detecting HC leakage should also be provided at strategic locations.</td><td>Being complied with.
Hydrocarbon detectors have been installed in all areas where there is a likelihood of HC leakages.
Details of Hydrocarbon and other detectors installed in plant premises is given below:
<table><tr><th>Type of Detector</th><th>Numbers of Detector</th></tr><tr><td>Hydrocarbon (process area)</td><td>814</td></tr><tr><td>Hydrocarbon (analyzer shelter)</td><td>77</td></tr><tr><td>Toxic gases + Hydrogen</td><td>343</td></tr></table></td></tr>
<tr><td>vi.</td><td>Liquid effluent generated from the refinery should be treated comprehensively to conform to the load based standards and concentration limits prescribed under EPA rules. The treated waste water should be recycled to the maximum extent for reuse in the plant operation and green belt development.</td><td>Complied with.
The effluent generated in the refinery is being treated in the effluent treatment plant. The treated waste water is reused in green belt development. The treatment consists of a primary treatment section followed by the biological treatment section, which consists of a Sequential Batch Reactor & a Membrane Bio Reactor.</td></tr>
<tr><td>vii</td><td>Influent and effluent quality monitoring station should be set up in consultation with the State Pollution Control Board. Regular monitoring should be carried out for the MINAS.</td><td>This condition is being complied with.</td></tr>
<tr><td>viii.</td><td>The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. On all sources of noise generation. The ambient noise levels should</td><td>Being complied with.

The overall noise levels in and around the plant areas are well within standards. Various noise control measures, such as acoustic hoods, enclosures, etc.,</td></tr>
</table>

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
	conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time) .	have been provided to reduce the impact of high-noise-generating equipment. The daytime and nighttime noise levels are well within the standards prescribed under the Environment (Protection) Act 1986 Rules, 1989. Please refer to **Annexure-II** for ambient noise monitoring reports.
ix.	The Company must submit a report on the Black Dust Generation from the refinery and its analysis including RPM, chemical composition within 6 months of plant operation.	Complied. Report already submitted.
x.	The Company must take up a detailed study regarding the Bio- Monitoring aspect of the dust emissions including its particle size distribution, RPM content, chemical characteristics etc. in consultation with an Expert Institute / Organization in order to assess the health impact due to the RPM emissions from the project within 6 months of project commissioning.	Complied. Report already submitted.
xi.	Comprehensive EIA must be carried out and EMP drawn. The Report should be submitted to the Ministry within 1 year incorporating firmed up action plans on pollution control and environmental management for the Refinery.	Complied. Report already submitted.
xii.	In addition to obtaining statutory clearances from CCF, Chief Inspectorate of factories, in the first instances, the project authority must obtain the recommendations of Chief Fire Adviser, Government of India (Ministry of Home Affairs) with regard to the Refinery Safety and fire protection measures. A report in this regard may be submitted to the ministry within 6 months	This condition is complied with. Necessary approval and recommendation from the Chief Fire Advisor, Government of India (Ministry of Home Affairs) have been obtained vide letter no. VIII-11011/01/07-DGCD(F) dated 14 July 2010. Report already submitted.
xiii.	Detailed Risk Analysis of the Refinery and associated facilities must be done once the engineering design and layout is frozen. Specifically, comprehensive	Condition stands already complied with.

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
	safety and fire protection measures must be taken with respect to LPG tank area and crude oil storage areas in the plant lay out. Based on this, onsite and off-site emergency preparedness plan must be prepared. Approval from the nodal agency must be obtained before commissioning the project.	

II. GENERAL CONDITIONS:

Sr. No.	GENERAL CONDITON	Status
i.	The project authorities must strictly adhere to the stipulations made by the Punjab Pollution Control Board and State Government.	Being complied with.
ii.	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment of Forests.	Being complied with.
iii.	In case of deviations or alterations in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Complied with. No alterations carried out.
iv.	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 1989 as amended on 3rd October, 1994. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, fire Safety Inspectorate etc. must be obtained.	This condition is already complied with.
v.	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management & Handling) Rules,	This condition is being complied with.

Sr. No.	GENERAL CONDITON	Status
	1989. Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/disposal.	
vi.	Occupational health surveillance programme should be undertaken as regular exercise for all the employees, specifically for those engaged in handling hazardous substances.	This condition is being complied with.
vii.	A green belt of adequate width and density should be developed using native plant species, within and around plant premises in consultation with State Forest Department. A norm of 2000-2500 plants per ha may be followed.	Complied with. The green belt has been developed as per the latest amended EC obtained from MoEF&CC dated 07th December, 2021.
viii.	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. should be ensured for constructions workers during the construction phase so as to avoid felling of trees and pollution of water and the surroundings.	This condition was complied with during the construction phase.
ix.	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA and Risk Analysis report.	Complied with. The environmental protection measures and safeguards recommended in the EIA and Risk Analysis report are being complied with.
x.	The project proponent should have a scheme for social upliftment in the nearby village with reference to contribution in road construction, education of children, festivals, health centers, sanitation facilities, drinking water supply, community awareness and employment to local people whenever possible both for technical and non-technical jobs.	Condition is being complied with. Various measures taken for social upliftment in the nearby villages till date by the project proponent are enclosed in **Annexure-III.**
xi.	A separate environmental management cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	This condition stands complied with. A full-fledged environment management cell headed by DGM-Operational Excellence and laboratory facilities have been established to carry out the

Sr. No.	GENERAL CONDITON	Status
		environmental management and monitoring functions.
xii.	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 purpose.	Complied with. Adequate funds have been allocated for adhering to the conditions stipulated by MoEF&CC / CPCB/ PPCB and these funds are not diverted for any other purpose.
xiii.	The implementation of the project vis-à-vis environmental action plans will be monitored by Ministry's Regional Office at Chandigarh / State Pollution Control Board / Central Pollution Control Board. A six monthly compliance status report should be submitted to monitoring agencies.	This condition is being complied with on a regular basis. Six monthly EC compliance report along with monitoring reports are being submitted regularly. Latest submission done vide letter no. HMEL-TS-40-ENV 1191 dated 29th Nov, 2024, copy of the submission is attached as **Annexure-IV**.

Six Monthly EC compliance report of GGSR for Modification of Refinery Configuration of 9 MMTPA refinery. (Letter no. J-11011/27512007-IA II (I) date 16th July 2007).

A. SPECIFIC CONDITIONS:

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
i.	All the conditions stipulated by this Ministry vide its letter no. J-11011/24/98-IA-II (I) dated 6th November, 1998 shall be strictly implemented.	Complied with.
ii.	The gaseous emissions (SO_2, NO_X, HC, H_2S and Benzene), from various process units shall conform to the standards prescribed under Environment (Protection) Rules, 1986 or norms stipulated by the SPCB whichever is more stringent. At no time, the emission level should go beyond the stipulated standards. In the event of failure of pollution control systems (s) adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.	Complied with. The gaseous emissions (SO_2, NO_X, HC, etc.) from the various process units comply with the requirements prescribed by PPCB and Refinery Standards as notified in 2008.
iii.	Adequate Ambient Air Quality Monitoring Stations [SPM, SO_2, NO_x, HC, and Benzene] shall be set up in consultation with SPCB, based on occurrence of maximum ground level concentration and down wind direction i.e. maximum impact zone. The monitoring network must be decided based on modeling exercise to represent short term GLCs. Continuous on-line stack monitoring equipment shall be installed for measurement of SO_2, NO_x. The company shall install online monitors for VOC measurements. Data on VOC shall be monitored and submitted to the SPCB/Ministry.	This condition is complied with. Five (5) continuous ambient air quality monitoring stations have been set up inside GGSR in consultation with the regulatory body. Parameters like PM_{10}, $PM_{2.5}$, SO_2, NO_x Benzene, and THC are being monitored on a continuous basis, the report is attached as **Annexure-I** for the same.
iv.	Measures for fugitive emissions control shall be taken by provision of double mechanical seals to all pumps handling high vapor pressure materials, Sensors for	Complied with. The refinery has taken various measures for the control of fugitive emissions. Most of the HC pumps

<table>
<tr><th>Sr. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td></td><td>detecting HC/toxic leakages at strategic locations, regular inspection of floating roof seals, maintenance of valves and other equipments and regular skimming of separators/equalization basin.</td><td>are designed with double mechanical seals. HC and toxic gas detectors have been installed at strategic locations for the detection of leaks. Inspection of floating roof seals, maintenance of valves, and other equipment are done as standard practice.</td></tr>
<tr><td>v.</td><td>All new standards /norms that are being proposed by CPCB for oil refineries and petrochemicals shall be applicable for the proposed refinery configuration. The project authorities shall take necessary measures to comply with the above proposed emission norms including monitoring facilities and intimate the same to the ministry.</td><td>Complied with.</td></tr>
<tr><td>vi.</td><td>The company shall adopt Leak Detection and Repair (LDAR) programme for quantification and control of fugitive emissions.</td><td>This condition is complied with.
The LDAR programme is being carried out throughout the year for the quantification and control of fugitive emissions by third parties, and records are maintained.
From Oct’24 to Mar’25, a total of 42000 points have been monitored.</td></tr>
<tr><td>vii.</td><td>The Company shall also ensure that the total SO_2 emissions shall not exceed 1000 kg/hr. Sulphur recovery units with more than 99% efficiency shall be installed.</td><td>This condition is being complied with.
SO_2 emissions are well within the stipulated limits of 1the CPCB.
Exiting SO_2 emission: average range: 670 kg/hr to 723 kg/hr (16.08 TPD to 17.35 TPD).
The overall sulphur recovery efficiency of Sulphur Recovery Unit with tail gas treatment for the compliance period was 99.98%.
<table>
<tr><th>Month</th><th>Sulphur Recovery (in %)</th></tr>
<tr><td>Oct’24</td><td>99.99</td></tr>
<tr><td>Nov’24</td><td>99.99</td></tr>
<tr><td>Dec’24</td><td>99.98</td></tr>
<tr><td>Jan’25</td><td>99.98</td></tr>
<tr><td>Feb’25</td><td>99.98</td></tr>
<tr><td>Mar’25</td><td>99.98</td></tr>
</table>
</td></tr>
</table>

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
viii.	To mitigate NO_x emission, the company shall install low NO_x burners.	This condition is complied with. Low NOx burners are installed in all boilers and heaters.
ix.	The waste-water effluent shall not exceed 450 m^3/hr. The waste-water shall be segregated in different streams at the source. The treated effluent shall comply with the standards stipulated by PSPC/CPCB for discharge on land for irrigation. The treated effluent shall be recycled and reused for cooling, service, green belt, dust suppression and fire water etc.	Complied with. The waste-water effluent is well within 350 m^3/hr. The waste water is segregated into different streams at the source, like Stripped Sour Water, CRWS, OWS, etc. The treated effluent complies with the standards stipulated by PPCB and CPCB for discharge on land for irrigation. The treated effluent water is being reused and recycled for cooling service, green belt development, dust suppression and the fire network within the refinery.
x.	The oily sludge generated from the ETP after oil recovery shall be disposed in the secured land fill as per CPCB requirement. The spent catalyst from various units shall be returned to the manufacturers for reuse/recycle. The pet coke generated should be sold. The design of the secured landfill site shall be as per the Central Pollution Control Board guidelines.	Complied with. The Oily Sludge generated from ETP is partially processed / recycled in the Delayed Coker Unit (DCU). The spent catalyst from the various process units is disposed off to the approved recyclers. Details are provided in the annual return under HOWM, Rules, 2016. The pet coke generated by DCU is being used/sold. A Secured Land Fill (SLF) site has been developed for the disposal of solid/hazardous waste, complying with all the applicable regulations / guidelines issued by MoEF&CC.
xi.	Green belt shall be provided to mitigate the effects of fugitive emissions all around the plant in an area of 300 acres in consultation with DFO as per CPCB guidelines.	Complied with. The green belt has been developed as per the latest amended EC obtained from MoEF&CC dated 07th December 2021.
xii.	Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories act.	This condition is being complied. A full-fledged Occupational Health Centre (OHC) is established at GGSR for health surveillance and records are maintained on a regular basis.

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
xiii.	The company shall prepare comprehensive EIA/EMP report and should be submitted to the Ministry within 1 year.	This condition is complied with. The EIA / EMP report has already been submitted to the Ministry.
xiv.	Detailed Risk Analysis of the Refinery and associated facilities shall be prepared once the engineering design and layout is frozen. Onsite and off-site emergency preparedness plan must be prepared and approval from the nodal agency shall be obtained before commissioning the project.	This condition is complied with. A detailed risk analysis of the refinery and associated facilities was prepared by Engineers India Limited. Onsite and off-site emergency plans are prepared, and approval for the same is obtained from the director of the factory.

B. GENERAL CONDITIONS:

S. No.	GENERAL CONDITONS	COMPLIANCE STATUS
i.	The project authorities must strictly adhere to the stipulations made by the Punjab Pollution Control Board and State Government.	The stipulations made by PPCB are being adhered to strictly.
ii.	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment & Forests.	Condition noted. Prior approval is obtained from the MOEF&CC for any expansion / modification activities.
iii.	At no time, the emission level should go beyond the stipulated standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	The emission levels are within the stipulated standards as per the norms prescribed by the CPCB. Online Continuous Emission Monitoring System (OCMS) has been installed as per the direction of CPCB and PPCB, and data is being transmitted on the servers of CPCB and PPCB.
iv.	The overall noise levels in and around the plant area should be kept well within the 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).	Being complied with. The overall noise levels in and around the plant areas are well within standards. Various noise control measures, such as acoustic hoods, enclosures, etc., have been provided to reduce the impact of high-noise-generating equipment. The daytime and nighttime noise levels are well within the standards

S. No.	GENERAL CONDITONS	COMPLIANCE STATUS
		prescribed under the Environment (Protection) Act 1986 Rules, 1989. Please refer **Annexure-II** ambient noise monitoring reports.
v.	The project authorities must strictly comply with 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 project.	This condition is being complied with.
vi.	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management & Handling) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collections/ treatment/storage/disposal of Hazardous wastes.	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 are being complied with. Authorization from PPCB has been obtained and is valid till 30th June 2029.
vii	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 purpose.	Adequate funds have been allocated for adhering to the conditions stipulated by MoEF&CC and PPCB and are not diverted for any other purpose.
viii.	The stipulated conditions will be monitored by regional office of this ministry at Chandigarh/Central Pollution Control Board/State Pollution Control Board. A Six Monthly compliance report and the monitored data should be submitted to them regularly.	This condition is being complied. Six monthly EC compliance report along with monitoring reports are being submitted regularly. Latest submission done vide letter no. HMEL-TS-40-ENV 1191 dated 29th Nov, 2024, copy of the submission is attached as **Annexure-IV**.
ix.	The project proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance	This condition already stands complied with.

S. No.	GENERAL CONDITONS	COMPLIANCE STATUS
	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 issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in vernacular language of the locality concerned and a copy the same should be forwarded to the regional office.	
x.	The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	This condition is complied with. The financial closure of the project had been achieved in July 2007, and the zero date for the project had been declared as 14th November, 2007. The above had already been communicated to the Regional office as well as to the Ministry.

A. SPECIFIC CONDITIONS

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td>i</td><td>Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J 11011/24/98-IA II dated 6th November 1998 and J-11011/275/2007-IA II dated 16th July 2007 shall be satisfactorily implemented and compliance reports submitted to the Ministry's regional office at Chandigarh.</td><td>Complied with.
The compliance with all the environmental conditions stipulated in the environmental clearances granted in 1998 and 2007 has been certified by MoEF&CC, Regional Office, Chandigarh, vide letter no. 4-81/2004-RO (NZ)/293-294 dated 14th July, 2017. The summary status of the compliances as stipulated in the said letter is given below:
<table>
<tr><th>EC grant year</th><th>No. of Conditions</th><th>No of Conditions Complied</th><th>No of conditions pending</th></tr>
<tr><td>2007</td><td>24</td><td>24</td><td>Nil</td></tr>
<tr><td>1998</td><td>26</td><td>26</td><td>Nil</td></tr>
</table></td></tr>
<tr><td>ii</td><td>M/s HPCL-Mittal Energy Limited shall comply with new standards/norms for oil refinery industry notified under the Environment (Protection) Rules, 1986 vide G.S.R 186E dated 18th March 2008.</td><td>Complied with.
All the standards/norms for oil refineries notified under the EP Rules 1986 vide GSR 186 E dated 18th March 2008 are being complied with.
The stack emission monitoring reports and effluent analysis reports are attached as Annexure-V and Annexure-VI respectively.</td></tr>
<tr><td>iii</td><td>Continuous online stack monitoring of SO_2, NO_X & CO of all stacks shall be carried out. Low NO_X burners shall be installed.</td><td>Complied with.
Continuous online stack monitoring analyzers for SO_2, NOx, CO and SPM have been installed in all stacks and the data is being transmitted online to CPCB/PPCB servers.
Low NO_X burners have been installed in all the boilers and heaters.</td></tr>
</table>

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td>iv</td><td>ESP along within stack of adequate height shall be provided to pet coke/coal fired boiler. Limestone will be injected to pet coke/coal fired boiler to control SO_2 emission.</td><td>Complied with.
ESPs and adequate stack height have been provided for petcoke and coal-fired boilers. A limestone injection facility is installed in the pet coke and coal-fired boilers to control SO_2 emissions.</td></tr>
<tr><td>v</td><td>The process emissions SO_2, NO_X, HC (Methane & non methane), VOC's & Benzene from various units shall conform to the standards prescribed under Environmental (Protection) Act. At no time shall emission levels shall go beyond the stipulated standards. In the event of failure of pollution control systems adopted by the units, the unit shall be immediately put out of operation and should be not restarted until the desired efficiency of the pollution control device has been achieved.</td><td>Complied with.
The continuous emission monitoring systems (CEMS) data on gaseous emissions and particulate matter from various units are being transmitted online to CPCB/PPCB servers.
Manual monitoring for gaseous emissions and particulate matter in stacks is also being monitored by a third party (MoEF&CC and NABL-approved laboratory). The stack emission monitoring reports are attached as Annexure-V.</td></tr>
<tr><td>vi</td><td>Leak Detection & Repair Program shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.</td><td>Complied with.
A LDAR program for the refinery has been implemented for the control of HC/VOC emissions. The program focuses on preventive maintenance of pumps, compressors, flanges, and valves.
From Oct'24 to Mar'25, a total of 42000 points have been monitored.
Sensors for detecting HC leakage have also been provided at strategic locations in the ISBL area.
<table>
<tr><th>Type of Detector</th><th>Numbers</th></tr>
<tr><td>Hydrocarbon (process area)</td><td>814</td></tr>
<tr><td>Hydrocarbon (analyzer shelter)</td><td>77</td></tr>
<tr><td>Toxic gases + Hydrogen</td><td>343</td></tr>
</table></td></tr>
<tr><td>vii</td><td>SO_2 emissions after expansion from the plant shall no exceed 23.64 TPD and further efforts shall be made for reduction of SO_2 load through use of low sulphur fuel. Sulphur recovery units shall be</td><td>This condition is being complied with.
The total SO_2 emission from the GGSR has been modified to 23.8 TPD as per EC dated 07th August 2018, which includes emissions from the expansion projects.</td></tr>
</table>

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td></td><td>installed for control of H_2S emissions. The overall sulphur recovery efficiency of sulphur recovery unit with tail gas treating shall not be less than 99.9 %.</td><td>SO_2 emissions from the existing refinery remained in the range of 16.08 TPD to 17.35 TPD against the limit of 23.8 TPD.
The overall sulphur recovery efficiency of Sulphur Recovery Unit with tail gas treatment for the compliance period was 99.98%
Month wise sulphur recovery is given below:
<table><tr><th>Month</th><th>Sulphur Recovery (in %)</th></tr><tr><td>Oct’24</td><td>99.99</td></tr><tr><td>Nov’24</td><td>99.99</td></tr><tr><td>Dec’24</td><td>99.98</td></tr><tr><td>Jan’25</td><td>99.98</td></tr><tr><td>Feb’25</td><td>99.98</td></tr><tr><td>Mar’25</td><td>99.98</td></tr></table></td></tr>
<tr><td>viii</td><td>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 unit through feed (sulphur content in crude oil), sulphur output from refinery through products, byproducts (elemental sulphur), atmospheric emissions etc. will be maintained.</td><td>This condition is being complied with.
The sulphur balance of the refinery is calculated considering the sulphur content of crude oil, atmospheric SO_2 emissions from various units, solid sulphur produced, and the sulphur content of various products. The sulphur balance is regularly computed and the data maintained.</td></tr>
<tr><td>ix</td><td>Flare gas recovery system shall be installed.</td><td>Complied with.
The flare recovery system is in operation.
The month-wise HC recovery is given below:
<table><tr><th>Month</th><th>HC Recovery (MT)</th></tr><tr><td>Oct’24</td><td>332.9</td></tr><tr><td>Nov’24</td><td>456.8</td></tr><tr><td>Dec’24</td><td>334.4</td></tr><tr><td>Jan’25</td><td>277.9</td></tr><tr><td>Feb’25</td><td>213.6</td></tr><tr><td>Mar’25</td><td>293.2</td></tr><tr><td>Average</td><td>318.1</td></tr></table></td></tr>
</table>

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td>x</td><td>Ambient air quality monitoring stations, (PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2S, Mercaptan, non-methane-HC and Benzene) shall be set up in the complex in consultation with State Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs. Trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.</td><td>This condition is being complied.
Five (5) continuous ambient air quality monitoring stations have been set up inside GGSR in consultation with the regulatory body.
Ambient air quality monitoring data is attached as Annexure-I.</td></tr>
<tr><td>xi</td><td>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 it is possible.</td><td>Complied with.
A suitable stack height as per the prescribed standards and the necessary acoustic enclosure are provided for the DG sets.</td></tr>
<tr><td>xii</td><td>Total water requirement from Kotla Canal after expansion shall not exceed 2,420 m^3/hr and prior permission shall be obtained from the competent authority. Industrial effluent generation shall not exceed 720m^3/h and treated in the effluent treatment plant. Out of which 376 m^3/h of industrial effluent generated from cooling tower blow down and boiler blow down shall be treated through Reverse Osmosis (RO) and Demineralize Plant (DM) and permeate shall be recycled for cooling tower make up and boiler blow down. RO rejects shall be evaporated in the Multiple effect evaporator (MEE). Process effluent and condensate from MEE shall be treated in the ETP comprising API and TPI oil removal units, biological treatment units</td><td>This condition is being complied.
As per the latest EC dated 07th August 2018, total water requirement is 2452 m^3/hr.
The total water usage and industrial effluent generation/reuse quantities are well within the stipulated limits.
The average consumption of raw water for the period Oct’24 to Mar’25 is 1967 m^3/hr the data for which is given below:
<table>
<tr><th>Month</th><th>Raw water consumption (m^3/hr)</th></tr>
<tr><td>Oct’24</td><td>2132</td></tr>
<tr><td>Nov’24</td><td>1882</td></tr>
<tr><td>Dec’24</td><td>1984</td></tr>
<tr><td>Jan’25</td><td>1994</td></tr>
<tr><td>Feb’25</td><td>1785</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDITIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td></td><td>such as SBR, MBR and tertiary treatment unit. Treatment effluent shall be recycled for cooling tower make up water and reused for horticulture / gardening. Domestic sewage shall be treated in sewage treatment plant (STP).</td><td><table><tr><td>Mar’25</td><td>2023</td></tr><tr><td>Average</td><td>1967</td></tr></table>The permission for the drawl of water from Kotla canal was obtained vide letter no. 021/2014-(2) 1128-4426/1 dated 30th July, 2018.
Boiler blowdown and cooling tower blowdown are treated in RODM units, and the permeate is recycled back into the process. The RO rejects are evaporated in a solar pond or evaporation plant.
An average of 24 m^3/day of domestic sewage was treated in domestic sewage treatment plants from Oct’24 to Mar’25.</td></tr>
<tr><td>xiii</td><td>All the effluents after treatment shall be routed to a properly lined guard pond for equalization and final control. In the guard pond, automatic monitoring system for flow rate, pH and TOC shall be provided. Data shall be uploaded on company’s website and provided to respective regional Office of MoEF&CC and SPCB.</td><td>Complied with.
All the effluent after treatment is routed to the treated effluent tank. The online flow meter, pH, COD, BOD & TSS analyzers are installed at the ETP outlet and data is being transmitted to the CPCB / PPCB server as per the direction of CPCB/PPCB in 2016, copy of data from Oct’24 to Mar’25 is attached as Annexure-VII.
The ETP outlet data is uploaded along with six monthly compliance reports on the company’s website and also submitted to RO, MoEF&CC, and Chandigarh.</td></tr>
<tr><td>xiv</td><td>Oil catchers / oil traps shall be provided at all possible locations in rain / storm water drainage system inside factory premises.</td><td>Complied with.
Two (2) nos. of oil catchers are provided in the upstream of the storm water pond within the refinery complex.</td></tr>
<tr><td>xv</td><td>Oily sludge shall be disposed off into coker and balance oily sludge will be treated in the bioremediation facility. Annual oily sludge generation and disposal data shall be submitted to the Ministry’s Regional office and CPCB.</td><td>Complied with.
The oily sludge generated is disposed off in the delayed coker unit (DCU), and the balance of the oily sludge is disposed of in the secured landfill facility within the refinery complex.
The annual return (Form-IV) of hazardous waste containing the data for oily sludge that is generated &</td></tr>
</table>

S. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
		disposed off for the period of 2023-24 was submitted vide letter no. HMEL-TS-40-ENV1145 on dated 25th June, 2024. During Oct'24 to Mar'25, total 3947 MT oily and chemical sludge is generated which is reprocessed in Delayed Coker Unit or disposed off within secure SLF.
xvi	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 & Trans - Boundary movement) rules 2008 & amended time to time.	Complied with. The rules and regulations specified under MSIHC Rules, 1989, have been incorporated into the design requirements of refineries and their associated facilities and accordingly implemented. The hazardous waste is handled, stored, transported, and disposed of as per the Hazardous Waste (Management, Handling, and Transboundary Movement) Rules, 2016 and the hazardous waste authorization issued by PPCB which is valid until 31.03.2025. Hence, this condition is complied with.
xvii	The membership of common TSDF should be obtained for the disposal of the hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Chandigarh. 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.	Complied. The refinery has an operational Secured Landfill (SLF) facility within the complex. Non-recyclable or non-reprocessable hazardous waste from the existing as well as expansion units is disposed off in this SLF. Hence, membership of the common TSDF has not been taken. Spent catalyst from various units is disposed off at SPCB authorized recyclers and re-processors.
xviii	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	Complied with. The oil spillage/leakage prevention management plan is in place.
xix	The company shall strictly follow all the recommendations mentioned in Charter on	The CREP recommendations implementation status is as follows:

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDITIONS</th><th colspan="3">COMPLIANCE STATUS</th></tr>
<tr><td></td><td>Corporate Responsibility for Environmental Protection (CREP).</td><td colspan="3"><table>
<tr><th>Sr. No</th><th>Requirement of CREP</th><th>Status</th></tr>
<tr><td>1</td><td>Installation of online monitoring system</td><td>Completed.
Continuous Emission and Effluent Monitoring Systems have been installed in stacks and ETP outlets. Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are also installed. The CEMS and CAAQMS data has been transmitted online to CPCB servers since March 2016.</td></tr>
<tr><td>2</td><td>Zero Liquid Discharge</td><td>Completed.
GGSR is a ZLD refinery. The entire treated water from ETP is used for greenbelt and horticulture development.</td></tr>
<tr><td>3</td><td>Oily Sludge management</td><td>Oily sludge generated from ETP is processed in DCU, sold to offsite re-processors, or disposed off in SLF.</td></tr>
<tr><td>4</td><td>Installation of VOC collection and treatment system in ETP.</td><td>Completed.
Since the design stage, the VOC collection and treatment system has been installed and operational in ETP.</td></tr>
<tr><td>5</td><td>Air Emission reduction measures adopted.</td><td>a) Use of Low Sulphur Fuel Oil and Fuel Gas in Refinery (<0.5 % sulphur in FO & < 150 mg/nm^3 sulphur in FG).
b) Use of low NOx burners in all heaters and boilers to minimize NOx emissions.
c) Stack heights have been provided in line with the</td></tr>
</table></td></tr>
</table>

S. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
		minimum stack height criteria as per CPCB Standards d) Installation of a Third Stage Separator (TSS) and a Fourth Stage Separator (FSS) in the FCC to minimize particulate matter emissions e) Floating roofs are provided in storage tanks to minimize the fugitive emissions. f) VOC emission treatment at ETP to minimize fugitive emissions. g) Closed Blowdown System to minimize hydro - carbon emissions. h) LDAR programme implemented.
xx	Occupational Health Surveillance of the workers should be done on regular basis and records maintained as per Factories Act.	Complied with. A health check is done once every six (6) months for workers working in the operation area and once a year for workers working in the non-operational area. The health checkup records are being maintained as per the Factories Act. Hence, the condition is being complied with.
xxi	As proposed Green Belt over 33 % of the total project area shall be developed within the plant premises with at least 10 meters wide green belt on all sides along the periphery of the project area, in downwards direction, and along road sides etc. Selection of plant species shall be as per CPCB guidelines in consultation with the DFO.	Complied with. A green belt has been developed as per the latest amended EC obtained from MoEF&CC dated 07th December, 2021.
xxii	Company shall prepare project specific environmental manual and a copy shall be made available at the project site for the compliance.	Complied with. Environment manuals for ETP have been prepared and is available at the site with the concerned persons.

S. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
xxiii	All the recommendations mentioned in the Rapid Risk Assessment report, disaster management plan & safety guidelines shall be implemented. The company should make the arrangement for protection of possible fire and explosion hazards during manufacturing process in material handling.	Complied with. All the recommendations mentioned in the Rapid Risk Assessment report, disaster management plan & safety guidelines have been implemented.
xxiv	All commitment made regarding issues raised during the public hearing/consultation meeting held on 14th October, shall be satisfactorily implemented. Accordingly provision of budget to be kept.	Complied with. A total of 13 queries were raised during the public hearing for the expansion project. 12 queries have already been completed. One query was related to the shifting of Kanakwal village and the same was closed by the District Administration. Hence, the condition is complied with.
xxv	At least 2.5% (54 crores) of the total cost of the project 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 Ministry's Regional Office at Chandigarh.	Complied with. The details of Enterprise Social Responsibility activities undertaken are enclosed as **Annexure-III**. The time bound action plan has been submitted to the RO, MoEF&CC, Chandigarh.
xxvi	Company shall adopt Corporate Environment Policy as per the Ministry's O.M No. J-11013/41/2006-IA II (I) dated 26th April 2011 and implemented.	Complied with. We have already adopted and implemented our Corporate Environment Policy.
xxvii	Provision shall be made for the housing of construction labour within site with all necessary infrastructure and facility 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 completion of the project.	Complied. The project was completed in 2017. During the project, canteen facilities, toilet facilities, RO drinking water facilities, medical health care facilities, etc. were provided. Hence, this condition was complied with during the construction phase of the project.

B. GENERAL CONDITIONS:

S. No.	GENERAL CONDITIONS	COMPLIANCE STATUS
i	The project authorities shall strictly adhere to the stipulations made by the State Government & Punjab Pollution Control Board.	Complied with. All the stipulations made by the State Government and the Punjab Pollution Control Board are being complied with.
ii	No further expansion or modification in the plant shall be carried out with our prior approval of the Ministry of Environment and Forest. 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.	Complied with. Pursuant to obtaining this clearance, prior Environmental Clearance (EC) has been obtained from MoEF&CC before implementing the BS VI project vide EC letter no. letter no. F.No. J-11011/386/2016-IA-II (I) dated 7th August 2018. There have been no deviations or alterations made in the project proposal from those submitted to MoEF&CC.
iii	The locations of ambient air quality monitoring stations shall be decided in consultation with the Punjab Pollution Control Board (PPCB) and it shall be insured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	Complied with. Five (5) Continuous Ambient Air Quality Monitoring stations have been installed in consultation with PPCB in suitable locations in the Refinery. Hence, this condition is complied with.
iv	The overall noise levels in and around the plant area shall be kept within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act 1986 Rules,1989 viz.75 dBA (Day time) & 70 dBA (Night time).	Complied with. The overall noise levels in and around the plant areas are well within standards. Various noise control measures, such as acoustic hoods, enclosures, etc., have been provided to reduce the impact of high-noise-generating equipment. The day time and night time noise levels are well within the standards prescribed under the Environment (Protection) Act 1986 Rules, 1989. Please refer to **Annexure-II** for ambient noise monitoring reports.

S. No.	GENERAL CONDITIONS	COMPLIANCE STATUS
v	The company shall harvest rainwater from the roof top of the building and storm drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	Complied with. A total of six rainwater harvesting and groundwater charging pits are installed inside the refinery premises. In refinery, a storm water pond is provided to harvest rainwater. Collected storm water is being utilized for horticulture.
vi	The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules 2008 and its amendment time to time and prior permissions from PPCB shall be obtained for disposal of solid/hazardous waste including boiler ash.	Complied with. The authorization for collection, storage, and disposal of hazardous waste is available for refinery and is valid till 30th June 2029.
vii	During transfer of materials, spillage shall be avoided and garland drains be constructed to avoid mixing of accidental spillages with domestic wastewater and storm water drains.	The condition is complied with. To avoid the mixing of accidental spillages with domestic wastewater and storm water drains during the transfer of material, garland drains have been constructed.
viii	Usage of Personal Protection Equipment's by all employees/workers should be ensured.	This condition is being complied with. PPE's has been provided to all the employees/workers. It is being ensured by all the plants that proper PPE's are worn by all concerned.
ix	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examination for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	This condition is being complied with. Each worker is imparted safety training before issuing a gate pass, and refresher training is done every 6 months. Pre-employment and periodic medical examinations are done six monthly for workers working in operational areas and yearly for workers working in non-operational areas.
x	The company shall also comply with all the environmental protection measures and safeguards	Complied with.

S. No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	proposed in the project report submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management risk mitigation measures and public hearing relating to the project shall be implemented.	
xi	The company shall undertake CSR activities and all the relevant measures for improving the socio-economic conditions of the surrounding area.	This condition is being complied with. Details of activities undertaken to improve the socio-economic conditions of the surrounding areas are attached as **Annexure-VIII.**
xii	The company shall undertake eco-developmental measures including community welfare measure in the project area for the overall improvement of the environment.	This condition is being complied with. Details of eco-developmental measures, including community welfare measures in the project area, are enclosed as **Annexure-IX**.
xiii	A separate Environmental Management cell equipped with full-fledged laboratory facilities shall be set up to carry out the environmental Management and Monitoring functions.	Complied with. A dedicated Environment Management Cell headed by the Deputy General Manager (Environment) looks after the environmental management and monitoring functions of the refinery. GGSR also has a state-of-the art laboratory with environmental pollution analysis equipment.
xiv	As proposed the company shall earmark the sufficient funds toward capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forest as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	This condition has been complied with. Adequate funds have been allocated for capital and recurring cost and these funds are not diverted for any other purpose.
xv	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parishad / Municipal Corporation Urban local Body	This condition has already been complied with. The company has not received any suggestions/ representations while processing the proposal.

S. No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	and the local NGO, if any, from who suggestions /representations, if any, were received while processing the proposal.	
xvi	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as email) to the respective regional office of MoEF&CC, the respective zonal office of CPCB and the Punjab Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.	This condition is being complied with. The six-monthly compliance status reports of the stipulated EC conditions, including the results of the monitored data, are being sent to the regional offices of MoEF&CC, CPCB and ZO, PPCB vide letter no. HMEL-TS-40-ENV 1191 dated 29th Nov, 2024, copy of the submission is attached as **Annexure-IV**. A copy of an environmental clearance and six monthly compliance reports have been uploaded on the HMEL website at the link given below: http://www.hmel.in/corporate-sustainability-disclosures-report
xvii	The environmental statement for each financial year ending 31st March in Form - V as is mandated shall be submitted to the Punjab Pollution Control Board as prescribed under Environment (Protection) Rules, 1986, as amended subsequently, shall also be put up on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Chandigarh Regional offices of MOEF by e-mail.	This condition is being complied with. The environment statement for each financial year ending 31st March in Form-V is being submitted to PPCB and a copy of the same is uploaded on the HMEL website in the link given below: http://www.hmel.in/corporate-sustainability-disclosures-report
xviii	The project proponent shall inform the public that the project has been accorded Environment Clearance by the Ministry and copies of the clearance letter are available with SPCB/committee and may also be seen at website of the ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance	Complied. The accordance of Environmental Clearance for the project was advertised in two widely circulated local newspapers namely Tribune Bathinda (English) and Ajit (Punjabi) on 30th June 2015. A copy of these advertisements was submitted to the Regional Office,

S. No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	letter at least in two local newspaper that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office of Ministry.	MoEF&CC, Chandigarh vide our letter no. 9112-000-TSHQ-009-2015-14 dated 7th July, 2015.
xix	The project authorities shall inform the regional office as well as the ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	The requested project milestones are as follows: 1. The date of final board approval is 21st December, 2012. 2. The date of financial closure is 20th March, 2013. 3. The date of the start of the project is 9th September, 2015.

SPECIFIC CONDIONS:

S. No.	SPECIFIC CONDIONS	COMPLIANCE STATUS
(i)	The project proponent shall take stringent mitigating and other remedial measure to minimize the incremental concentration of air pollution (mainly PM_{10} & $PM_{2.5}$) to extent possible.	Complied with. The following measures have been implemented to minimize the emissions from the proposed project: 1. Regular sprinkling of water on roads. 2. Widening and bitumen laying of roads. 3. Bitumen carpeting in vehicle parking areas at the refinery main gate. 4. Discourage of stubble burning by providing happy seeders to villagers. The local air quality management plan has been prepared and submitted to PPCB vide letter no. HMEL-TS-40-ENV 644, dated 24th May'19.
(ii)	The project proponent shall develop local air quality management plan in consultation with SPCB and implemented to achieve desired standards.	
(iii)	The incremental ground level concentration (GLCs) for PM_{10}, $PM_{2.5}$, SO_2 & NOx due to the increased vehicular and other allied/developmental activities, shall be analysed and reported for actual impact of the project.	This condition is being complied with.
(iv)	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	Complied with. The Consent to Operate (CTO) for the project has been obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974. A copy of the same is attached as **Annexure-X**.
(v)	For the fuel quality up-gradation, as already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.	Complied with. The existing refinery complex as well as the Fual Up-gradation plant are Zero Liquid Discharge (ZLD) refinery. Treated effluent is recycled and re-used for

<table>
<tr><th>S. No.</th><th>SPECIFIC CONDIONS</th><th>COMPLIANCE STATUS</th></tr>
<tr><td></td><td></td><td>greenbelt/horticulture etc. Hence, no waste/treated water is discharged outside the premises.</td></tr>
<tr><td>(vi)</td><td>Necessary authorization required under the Hazardous and other Wastes (Management and Trans-Boundary Movement) Rules, 2016 and Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in Rules shall be strictly adhered to.</td><td>This condition has been complied with.

The authorization for collection, storage & disposal of Hazardous waste has already been obtained and is valid till 30th June 2029.</td></tr>
<tr><td>(vii)</td><td>National Emission Standards for Petroleum Oil Refinery issued by the Ministry vide G.S.R. 186(E) dated 18th March, 2008 and G.S.R. 595(E) dated 21st August, 2009 as amended time to time shall be followed.</td><td>This condition is being complied with.</td></tr>
<tr><td>(viii)</td><td>Total SO_2 emission from the refinery shall not exceed 990 kg/hr.</td><td>This condition is being complied with.
Exiting SO_2 emission: average range: 670 kg/hr to 723 kg/hr (16.08 TPD to 17.35 TPD).</td></tr>
<tr><td>(ix)</td><td>The control source and the fugitive emissions, suitable pollution control devices shall be installed with different stacks (attached to DHDT, HGU, Prime G) to meet the prescribed norms and/or the NAAQS. The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.</td><td>Complied with.
The DHDT and HGU plants are designed to meet prescribed CPCB/PPCB norms for the refinery.

Gaseous emissions are discharged through stacks of adequate height as per CPCB/PPCB norms.</td></tr>
<tr><td>(x)</td><td>Total fresh water requirement shall not exceed 5,952 cum/hr (including 32 cum/hr for the proposed project) to be met from Kotla Canal. Necessary permission in this regard shall be obtained from the concerned regulatory authority.</td><td>Complied with.
The total water usage and industrial effluent generation/reuse quantities are well within the stipulated limits.
The average consumption of raw water for the period Oct’24 to Mar’25 is 1967 m^3/hr
Details of the raw water consumption is given below:
<table>
<tr><th>Month</th><th>Raw water consumption (m^3/hr)</th></tr>
<tr><td>Oct’24</td><td>2132</td></tr>
<tr><td>Nov’24</td><td>1882</td></tr>
<tr><td>Dec’24</td><td>1984</td></tr>
<tr><td>Jan’25</td><td>1994</td></tr>
</table>
</td></tr>
</table>

S. No.	SPECIFIC CONDIONS	COMPLIANCE STATUS
		<table><tr><td>Feb'25</td><td>1785</td></tr><tr><td>Mar'25</td><td>2023</td></tr><tr><td>Average</td><td>1967</td></tr></table> The necessary permission had already been obtained from the state irrigation department.
(xi)	Process effluent/any wastewater shall not be allowed to mix with storm water. The storm water from the premises shall be collected and discharged through a separate conveyance system.	Complied with.
(xii)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arrestors shall be provided on tank farm, and solvent transfer to be done through pumps.	This condition is being complied with.
(xiii)	Process organic residue and spent carbon shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufacturers/cement industry.	This condition is being complied with. There is no boiler in the BS-VI project.
(xiv)	The company shall strictly comply with the rules and guidelines under Manufacture, Storage and import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	This condition is being complied with.
(xv)	Fly ash should be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust should be avoided.	Complied with. There is no boiler in the BS-VI project. Fly as generated from the two CFBC boilers of 300 TPH capacity each is stored in silos and given to the cement industries.
(xvi)	The company shall undertake waste minimization measures as below: -	Noted & complied with.

S. No.	SPECIFIC CONDIONS	COMPLIANCE STATUS
	a. Metering and control of quantities of active ingredients to minimize waste b. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. c. Use of automated filling to minimize spillage. d. Use of Close Feed system into batch reactors. e. Venting equipment through vapor recovery system f. Use of high pressure hoses for equipment clearing to reduce wastewater generation	
(xvii)	The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guideline in consultation with State Forest Department.	A green belt has been developed as per the latest amended EC obtained from MoEF&CC dated 07th December, 2021.
(xviii)	At least 0.25% of the total project cost shall be allocated for Corporate Environment Responsibility (CER) and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	INR: 275 lakhs i.e. about 0.25% of the total project cost has been allocated for Corporate Environment Responsibility (CER) and the time bound action plan has been submitted to MoEF&CC. A copy of the mail to MoEF&CC is enclosed as **Annexure-XI.** A 250 KLD wastewater treatment plant has been installed and made operational by the company in Phullokhari village under Corporate Environmental Responsibility (CER). Till date, the company has incurred an expenditure of INR: 70 lakhs (Approx).
(xix)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	Complied with. A suitable stack height as per the prescribed standards and the necessary acoustic enclosure are provided for the DG sets.
(xx)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in	Condition Complied with.

S. No.	SPECIFIC CONDIONS	COMPLIANCE STATUS
	material handling. Firefighting system shall be as per the norms.	Firefighting systems in manufacturing processes and material handling areas are already installed as per OISD standards.
(xxi)	Continuous online (24*7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within premises	Condition Complied with. Online SO_2, NOx, CO and SPM analyzers for the existing refinery have been installed and the online data is being transmitted to CPCB / PPCB servers. Similarly, online continuous effluent monitoring systems and flow meters have been installed at the existing ETP and the online data is being transmitted to CPCB/PPCB. In the proposed project, CEMS for SOx, NOx, CO, and PM have been installed, and the online data is being transmitted to CPCB and PPCB servers.
(xxii)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied with. Occupation health surveillance is done once every six (6) months for employees working in operational areas and once a year for employees working in non-operational areas, and records are maintained as per the Factories Act.

10.1: GENERIC CONDIONS:

S. No.	GENERIC CONDITIONS	COMPLIANCE STATUS
(i)	The project authorities must strictly adhere to the stipulations made by the State Government, Central Pollution Control Board, State Pollution Control Board and any other statutory authority.	Complied with. All the conditions stipulated by the MoEF&CC, CPCB and PPCB are being strictly adhered.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to 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.	Complied with. Prior Environmental Clearances have been obtained from MoEF&CC before implementing the modification/expansion of the existing refinery. Hence, this condition has been complied with.
(iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured the at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	This condition is being complied with. Five (5) Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed at the periphery of the refinery in consultation with the Punjab Pollution Control Board (PPCB).
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R No 826(E) dated 16th November, 2009 shall be followed.	Condition noted and complied with. The National Ambient Air Quality Emission Standards issued by MoEF&CC vide G.S.R. No. 826 (E) dated 16th November 2009 are being monitored and the data is being transmitted online to CPCB / PPCB servers.
(v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules viz. 75 dBA (day time) and 70 dBA (night time).	Being complied with. The overall noise levels in and around the plant areas are well within standards. Various noise control measures, such as acoustic hoods, enclosures, etc., have been provided to reduce the impact of high-noise-generating equipment. The day time and night time noise levels are well within the standards

		prescribed under the Environment (Protection) Act 1986 Rules, 1989. Please refer to **Annexure-II** ambient noise monitoring reports (from Oct'24 to Mar'25).
(vi)	The company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water	Complied with. A total of six rainwater harvesting and groundwater charging pits are installed inside the refinery premises. In the refinery, a storm water pond is provided to harvest rainwater. Collected storm water is being utilized for firefighting and horticulture.
(vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	Complied with. Each worker is imparted safety training before issuing a gate pass, and refresher training is done every 6 months. Pre-employment and periodic medical examinations are done six months a year for workers working in operational areas and once a year for workers working in non-operational areas.
(viii)	The company shall also comply with all the environment protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management and risk mitigation measures relating to the project shall be implemented.	This condition is being complied with.
(ix)	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. ESC activities shall be undertaken by involving local villages and administration.	This condition is being complied with. Details of activities undertaken to improve the socio-economic conditions of the surrounding areas are attached as **Annexure-VIII.**
(x)	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	This condition is being complied with. Details of eco-developmental measures, including community welfare measures in the project area, are enclosed as **Annexure-IX**.
(xi)	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to	Complied with.

	implement conditions stipulated by the Ministry of Environment, Forest and Climate change as well as the State government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	The company has earmarked sufficient funds towards capital cost and recurring cost per annum to implement conditions stipulated by the MoEF&CC as well as PPCB and will not be diverted for any other purpose.
(xii)	A copy of clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad /Municipal Corporation, Urban local Body and the local NGO, If any, from whom suggestions/representations if any, were received while processing the proposal.	A copy of the EC letter had already been sent to the concerned quarters.
(xiii)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal office of CPCB and SPCB. A copy of Environment Clearance and six monthly compliance status report shall be posted on the website of the company.	This condition is being complied with. The last six-monthly compliance reports were submitted to the Regional Office of MoEF&CC, the respective Zonal office of CPCB and SPCB vide letter no. Latest submission via letter no. HMEL-TS-40-ENV 1191 dated 29th Nov, 2024, copy of the submission is attached as **Annexure-IV**. A copy of Environment Clearance and six monthly compliance report has been uploaded on the HMEL website in the link given below: http://www.hmel.in/corporate-sustainability-disclosures-report
(xiv)	The environment statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be send to the respective Regional Offices of MoEF&CC by e-mail.	This condition is being complied with. The environment statement for each financial year ending 31st March in Form-V is being submitted to PPCB and a copy of the same is uploaded on the HMEL website in the link given below: http://www.hmel.in/corporate-sustainability-disclosures-report

(xv)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/committee and may also be seen at Website of the Ministry at http://moef.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 other concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry	A copy of the advertisement publishing the accordance of environmental clearance by MoEF&CC in the two widely circulated local newspapers is attached as **Annexure-XII.** Hence, this condition has been complied with.
(xvi)	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	This condition is complied with. The requested project milestones are as follows: 1. Final board approval of the Project: 30th December, 2016. 2. Start of the Project: 6th May, 2019. 3. Financial closure of the project: Financial closure is 01.03.2021.

ANNEXURE-I

Annexure-I

Monthly Average AAQMS Data of GGSR for Oct'2024 to March'2025							
Parameter		SO_2	NO_2	PM_{10}	$PM_{2.5}$	BENZENE	THC
Station No.	Month	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3
AAQMS 1		9.21	30.62	149.61	64.97	2.99	4.53
AAQMS 2		8.29	17.36	96.37	63.67	2.49	5.66
AAQMS 3	Oct-24	11.92	27.49	126.14	47.85	1.20	5.81
AAQMS 4		8.11	25.79	161.32	68.42	1.89	5.25
AAQMS 5		4.82	19.71	106.95	55.89	1.56	4.41
Min		4.82	17.36	96.37	47.85	1.20	4.41
Max		11.92	30.62	161.32	68.42	2.99	5.81
Avg		8.47	24.19	128.08	60.16	2.03	5.13
CPCB limit		80	80	100	60	5	
AAQMS 1		9.49	27.67	303.51	167.61	2.54	5.06
AAQMS 2		6.41	17.51	230.07	114.24	3.19	6.38
AAQMS 3	Nov-24	7.36	28.76	239.04	125.65	1.49	5.74
AAQMS 4		7.99	25.74	239.64	128.33	3.03	4.62
AAQMS 5		5.00	19.27	214.50	129.40	2.10	4.41
Min		5.00	17.51	214.50	114.24	1.49	4.41
Max		9.49	28.76	303.51	167.61	3.19	6.38
Avg		7.25	23.79	245.35	133.05	2.47	5.24
CPCB limit		80	80	100	60	5	
AAQMS 1		8.18	18.72	173.27	71.96	2.61	5.07
AAQMS 2		8.10	18.17	131.65	73.08	2.72	5.76
AAQMS 3	Dec-24	8.36	28.41	123.38	58.17	1.31	2.98
AAQMS 4		9.66	20.41	159.73	82.86	3.50	4.65
AAQMS 5		5.12	18.92	116.49	61.00	1.69	4.40
Min		5.12	18.17	116.49	58.17	1.31	2.98
Max		9.66	28.41	173.27	82.86	3.50	5.76
Avg		7.88	20.93	140.91	69.42	2.37	4.57
CPCB limit		80	80	100	60	5	
AAQMS 1		7.94	17.53	148.74	60.12	3.35	5.06
AAQMS 2		6.49	18.00	154.18	77.62	2.70	4.82
AAQMS 3	Jan-25	8.08	23.63	117.21	53.13	2.13	4.37
AAQMS 4		10.42	20.07	127.10	67.21	3.04	4.68
AAQMS 5		5.26	18.54	97.62	46.80	1.57	4.40
Min		5.26	17.53	97.62	46.80	1.57	4.37
Max		10.42	23.63	154.18	77.62	3.35	5.06
Avg		7.64	19.55	128.97	60.98	2.56	4.67
CPCB limit		80	80	100	60	5	
AAQMS 1		9.76	17.45	86.35	34.39	3.12	5.06
AAQMS 2		8.16	17.77	102.19	56.64	2.13	4.82
AAQMS 3	Feb-25	7.93	27.08	87.80	32.94	2.21	5.74
AAQMS 4		9.92	18.94	100.18	42.27	2.71	4.65
AAQMS 5		15.26	18.41	75.38	38.86	1.86	4.42
Min		7.93	17.45	75.38	32.94	1.86	4.42
Max		15.26	27.08	102.19	56.64	3.12	5.74
Avg		10.21	19.93	90.38	41.02	2.40	4.94
CPCB limit		80	80	100	60	5	
AAQMS 1		10.60	17.15	92.37	29.51	2.95	5.06
AAQMS 2		11.50	19.01	73.72	35.00	2.42	4.83
AAQMS 3	Mar-25	8.47	25.95	74.03	25.66	2.04	6.35
AAQMS 4		10.73	25.48	97.53	38.49	2.72	4.69
AAQMS 5		12.82	23.32	67.88	33.58	1.73	4.41
Min		8.47	17.15	67.88	25.66	1.73	4.41
Max		12.82	25.95	97.53	38.49	2.95	6.35
Avg		10.82	22.18	81.10	32.45	2.37	5.07
CPCB limit		80	80	100	60	5	

NOTE :

Particulate Matter (PM_{10}) is already higher in ambient air quality baseline data even before the start of the refinery operation. Its value varies from 252.5 µg/m^3 to 325.7 µg/m^3 as per baseline data for year 2010.

Particulate Matter ($PM_{2.5}$) is already higher in ambient air quality baseline data even before the start of the refinery operation. Its value varies from 101.8 µg/m^3 to 194 µg/m^3 as per baseline data for year 2010.

ANNEXURE-II

ALKOM SYNERGY PVT LTD

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TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Ambient Noise	AN-041124-09	04/11/2024
Issued to	M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka-TalwandiSaboo, Distt. Bhatinda(Punjab) India	
Date of Sampling & Time	18/10/2024	
Name of the Location	HMEL REFINERY	

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
1	Near Refinery Main Gate	72.4	54.1
2	Near Fire Water Reservoir	65.1	51.9
3	Near Road Crude Oil Tanks	71.8	55.3
4	Near ETP-1 (Refinery)	69.1	56.8
5	Near ETP-2 (Petchem)	72.6	57.9
6	Near Storm Water Pond East Side	67.1	53.6
7	Near Sulphur Yard South East Side	68.7	57.2
8	Near Rail Loading Dispatch South East Side	73.5	54.8
9	Near CPP North East Side	74.8	57.1
10	Near Poly Propylene Dispatch Area	69.2	54.6
11	Near Ecological Pond Area	71.5	55.1
12	Near Refinery Flare Area	73.7	69.4
13	Near Petchem Flare Area	72.1	67.7
14	Near Cool Heading Yard	68.6	55.1
15	Battery Limits DFCU	71.8	62.5
Permissible Limit in *dB(A) Leq For Industrial Area		**75 dB(A)**	**70 dB(A)**

**dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.*
CPCB = Central Pollution Control Board
Note: The Noise Ambient Air Quality Standards are given for reference

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

End of Report

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AUTHORIZED SIGNATORY

ALKOM SYNERGY PVT. LTD. NOIDA

ALKOM SYNERGY PVT LTD

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TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Ambient Noise	AN-091224-09	09/12/2024
Issued to	M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka-TalwandiSaboo, Distt. Bhatinda(Punjab) India	
Date of Sampling & Time	28/11/2024	
Name of the Location	HMEL REFINERY	

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
1	Near Refinery Main Gate	73.9	55.8
2	Near Fire Water Reservoir	68.2	52.4
3	Near Road Crude Oil Tanks	72.6	54.1
4	Near ETP-1 (Refinery)	70.8	55.8
5	Near ETP-2 (Petchem)	73.4	56.3
6	Near Storm Water Pond East Side	68.2	54.7
7	Near Sulphur Yard South East Side	67.9	55.2
8	Near Rail Loading Dispatch South East Side	74.2	53.8
9	Near CPP North East Side	72.9	56.5
10	Near Poly Propylene Dispatch Area	70.5	54.3
11	Near Ecological Pond Area	72.8	55.8
12	Near Refinery Flare Area	74.6	68.2
13	Near Petchem Flare Area	73.4	69.7
14	Near Cool Heading Yard	67.1	56.1
15	Battery Limits DFCU	72.5	63.9
Permissible Limit in *dB(A) Leq For Industrial Area		**75 dB(A)**	**70 dB(A)**

**dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.*
CPCB = Central Pollution Control Board
Note: The Noise Ambient Air Quality Standards are given for reference

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

*****End of Report*****

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TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Ambient Noise	**AN-060125-09**	**06/01/2025**
Issued to	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka-TalwandiSaboo, Distt. Bhatinda(Punjab) India**	
Date of Sampling & Time	31/12/2024	
Name of the Location	**HMEL REFINERY**	

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
1	Near Refinery Main Gate	71.6	56.1
2	Near Fire Water Reservoir	66.9	53.5
3	Near Road Crude Oil Tanks	71.0	55.9
4	Near ETP-1 (Refinery)	69.5	57.2
5	Near ETP-2 (Petchem)	71.2	54.8
6	Near Storm Water Pond East Side	69.7	53.2
7	Near Sulphur Yard South East Side	68.1	54.8
8	Near Rail Loading Dispatch South East Side	72.9	52.1
9	Near CPP North East Side	70.5	55.9
10	Near Poly Propylene Dispatch Area	69.2	54.6
11	Near Ecological Pond Area	68.8	56.2
12	Near Refinery Flare Area	73.4	69.4
13	Near Petchem Flare Area	74.1	68.7
14	Near Cool Heading Yard	68.9	54.2
15	Battery Limits DFCU	71.5	61.8
Permissible Limit in *dB(A) Leq For Industrial Area		**75 dB(A)**	**70 dB(A)**

**dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.*
CPCB = Central Pollution Control Board
Note: The Noise Ambient Air Quality Standards are given for reference

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

*****End of Report*****

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AUTHORIZED SIGNATORY

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TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Ambient Noise	AN-050225-09	05/02/2025
Issued to	M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka-TalwandiSaboo, Distt. Bhatinda(Punjab) India	
Date of Sampling & Time	30/01/2025	
Name of the Location	HMEL REFINERY	

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
1	Near Refinery Main Gate	71.2	55.6
2	Near Fire Water Reservoir	68.5	54.1
3	Near Road Crude Oil Tanks	72.1	53.3
4	Near ETP-1 (Refinery)	71.3	56.2
5	Near ETP-2 (Petchem)	72.1	54.1
6	Near Storm Water Pond East Side	70.3	52.6
7	Near Sulphur Yard South East Side	69.8	53.1
8	Near Rail Loading Dispatch South East Side	71.5	54.3
9	Near CPP North East Side	68.6	55.4
10	Near Poly Propylene Dispatch Area	71.5	56.1
11	Near Ecological Pond Area	70.3	58.1
12	Near Refinery Flare Area	72.5	67.3
13	Near Petchem Flare Area	73.2	55.7
14	Near Cool Heading Yard	67.1	59.5
15	Battery Limits DFCU	70.1	57.1
Permissible Limit in *dB(A) Leq For Industrial Area		**75 dB(A)**	**70 dB(A)**

**dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.*
CPCB = Central Pollution Control Board

Note: The Noise Ambient Air Quality Standards are given for reference

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

End of Report

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AUTHORIZED SIGNATORY

ALKOM SYNERGY PVT. LTD. NOIDA

ALKOM SYNERGY PVT LTD

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ambient Noise	**AN-060325-09**	**06/03/2025**
Issued to	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka-TalwandiSaboo, Distt. Bhatinda(Punjab) India**	
Date of Sampling & Time	06/02/2025	
Name of the Location	**HMEL REFINERY**	

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
1	Near Refinery Main Gate	71.1	56.8
2	Near Fire Water Reservoir	67.9	55.3
3	Near Road Crude Oil Tanks	73.5	52.1
4	Near ETP-1 (Refinery)	70.8	57.2
5	Near ETP-2 (Petchem)	71.6	55.9
6	Near Storm Water Pond East Side	72.8	54.1
7	Near Sulphur Yard South East Side	70.3	56.5
8	Near Rail Loading Dispatch South East Side	72.5	54.3
9	Near CPP North East Side	69.1	52.9
10	Near Poly Propylene Dispatch Area	72.7	54.5
11	Near Ecological Pond Area	68.1	53.9
12	Near Refinery Flare Area	72.8	56.1
13	Near Petchem Flare Area	74.5	55.5
14	Near Cool Heading Yard	69.1	56.2
15	Battery Limits DFCU	72.6	57.2
Permissible Limit in *dB(A) Leq For Industrial Area		**75 dB(A)**	**70 dB(A)**

**dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.*

CPCB = Central Pollution Control Board

Note: The Noise Ambient Air Quality Standards are given for reference

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

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ambient Noise	AN-070425-09	07/04/2025
Issued to	M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka-TalwandiSaboo, Distt. Bhatinda(Punjab) India	
Date of Sampling & Time	22/03/2025	
Name of the Location	HMEL REFINERY	

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
1	Near Refinery Main Gate	72.9	55.2
2	Near Fire Water Reservoir	68.5	56.9
3	Near Road Crude Oil Tanks	71.8	54.1
4	Near ETP-1 (Refinery)	72.3	56.5
5	Near ETP-2 (Petchem)	74.6	53.8
6	Near Storm Water Pond East Side	70.4	54.1
7	Near Sulphur Yard South East Side	72.1	55.9
8	Near Rail Loading Dispatch South East Side	70.9	53.7
9	Near CPP North East Side	68.2	54.2
10	Near Poly Propylene Dispatch Area	73.5	53.9
11	Near Ecological Pond Area	69.1	52.2
12	Near Refinery Flare Area	70.8	68.0
13	Near Petchem Flare Area	73.1	69.2
14	Near Cool Heading Yard	68.6	56.8
15	Battery Limits DFCU	71.9	58.3
Permissible Limit in *dB(A) Leq For Industrial Area		**75 dB(A)**	**70 dB(A)**

**dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing.*
CPCB = Central Pollution Control Board
Note: The Noise Ambient Air Quality Standards are given for reference

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

End of Report

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ANNEXURE-III

Annexure-III

Activities undertaken for improving socio-economic condition in the surrounding areas from Oct'24 to Mar'2025		
CSR Pillars	**Beneficiaries**	**Remarks**
Community Healthcare & Hygiene	25626	Medical camps; Promoting Sports among youth; Support of Fitness Equipments; Road Safety initiatives; Support of Mobile Toilets; Support to Drug de addiction Centre and Bal Bhawan; Road cleaning and Housekeeping; Personal Hygiene Awareness among Girls and Women; Anemia Screening and Awareness Session;
Livelihood and Sustainable Development	30132	Women Empowerment initiatives; Women Entrepreneurship initiatives; Animal Camp; livestock breed competition.
Total	**55758**	

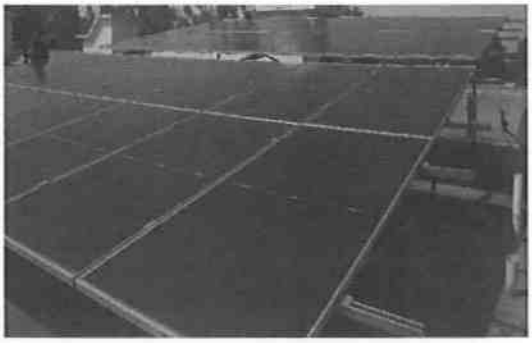
Activities undertaken for community welfare including eco-developmental measures in the surrounding areas from Apr'2024' to Sep'24		
CSR Pillars	**Beneficiaries**	**Remarks**
Education Development	31678	Drinking Water arrangement in schools; Coaching for Underprivileged Students for higher studies in Engineering institutions; Library books for Govt. schools; Installed Rides & Swing (Play equipment); Sports and Drawing Competition for Govt. Schools; Bicycle for Girls Students; Bicycle for Girls Students; Infrastructure support to Education institutions (Supply Items); Scholarship & Other support to Meritorious students for 10th & 12th class students; Setup of Smart interactive Boards in Govt. Schools; Toilet Constructions in Schools; Infrastructure facility support to Jain College Raman; Support to Red Cross society for providing education to special abled children; Govt. School Development
Community infrastructure and Environment	12053	Community level rural development work; Tree Guards & Concrete Benches; Support to community Institutions
Total	**43731**	

Photographs for activities undertaken for improving socio-economic condition in the surrounding areas from Oct'24 to Mar'2025

Livelihood and Sustainable Development (Animal health checkup camp)	Livelihood and Sustainable Development (Women Entrepreneurship initiatives)
	
Community Healthcare & Hygiene (Support of Fitness Equipments)	**Community Healthcare & Hygiene (Anemia Screening and Awareness Session)**
	
Livelihood and Sustainable Development (Livestock Breed Competition)	**Community Healthcare & Hygiene (Personal Hygiene Awareness Session)**
	

Photographs for activities undertaken for community welfare including eco-developmental measures

Education Development (Bicycle for Girls Students)	Education Development (School Uniform & Stationery distribution)
	
Education Development **(Scholarship to Meritorious Students)**	**Education Development** **(Smart interactive Boards in Govt. Schools)**
	
Community infrastructure and Environment **(Govt. School Development)**	**Community infrastructure and Environment** **(Community level rural development work)**



ANNEXURE-IV

Annexure - IV

CoOrdinator Chd

From:	Environment Team
Sent:	30 November 2024 14:13
To:	eccompliance-nro@gov.in
Cc:	ronz.chd-mef@nic.in; seezobti@gmail.com; eerobti@yahoo.in; CoOrdinator Chd; Sanket Thapar; Ravi Deshwal; Jatinder Kumar1; Gohil Ravirajsinh Bharatsinh; Sunayana Chandel
Subject:	Six Monthly EC Compliance Report of GGSR from Apr'24 to Sep'24
Attachments:	Six Monthly EC compliance Report_GGSR .pdf

To,
The Director,
Ministry of Environment, Forest & Climate Change,
Northern Regional Office,
Bays No. 24-25, Sector 31-A,
Dakshin Marg,
Chandigarh – 160 030.

Subject: Six Monthly EC Compliance Report (from Apr'24 to Sep'24) for Guru Gobind Singh Refinery at Phullokhari, Bathinda District, Punjab.

Ref: Environmental Clearance No. J-11011/24/98-IA II (dated 6th November, 1998
Environmental Clearance No. J-11011/27512007-IA II (I) date 16th July 2007
Environmental Clearance: F. No.: J-11011/275/2007 IA II (I) date 22nd June 2015 and
Environmental Clearance: F. No. J-11011/386/2016-IA-II (I) dated 7th August 2018

Respected Sir,

Please find enclosed six monthly EC compliance report (Apr'24 to Sep'24) of Guru Gobind Singh Refinery (along with Annexures) on the environmental conditions stipulated by MoEF&CC.

Thanks & Regards,
Environment Team,
Guru Gobind Singh refinery
Bathinda.

Received by
Jrdelseel
06/12/24

ANNEXURE-V

ALKOM SYNERGY PVT LTD

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-19	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	08/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	VGO Heater
Stack Identification	-	Stack attached to VGO Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	65
Diameter of Stack (m)	-	2.25
Sampling Duration (Minutes)	-	42
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	34
Average Stack Velocity (m/s)	-	8.26
Quantity of Emission ($Nm^3/hr.$)	-	90000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	12.5	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	91.1	328
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	33.7	676
3.	Carbon Monoxide (as CO)	IS:-13270	8.1	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-20	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	08/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DHDT-1
Stack Identification	-	Stack attached to DHDT-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	75
Diameter of Stack (m)	-	2.25
Sampling Duration (Minutes)	-	50
Parameters Monitored	-	PM,NO_x, SO_2, CO,Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	185
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	7.20
Quantity of Emission (Nm^3/hr)	-	53000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	13.1	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	75.4	327
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	48.9	666
3.	Carbon Monoxide (as CO)	IS:-13270	9.5	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-21	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	08/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DHDT-2
Stack Identification	-	Stack attached to DHDT-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	60
Diameter of Stack (m)	-	1.46
Sampling Duration (Minutes)	-	43
Parameters Monitored	-	PM,NO_x, SO_2, CO
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	8.12
Quantity of Emission (Nm^3/hr)	-	10500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas (mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.2	5
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	21.6	250
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	7.1	50
4.	Carbon Monoxide (as CO)	IS:-13270	6.4	100

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-28	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	09/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	NHT Reactor
Stack Identification	-	Stack attached to NHT Reactor
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	50
Diameter of Stack (m)	-	1.2
Sampling Duration (Minutes)	-	48
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	325
Ambient Temperature (^oC)	-	30
Average Stack Velocity (m/s)	-	10.00
Quantity of Emission (Nm^3/hr)	-	9500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	7.2	39
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	23.4	324
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	18.9	645
3.	Carbon Monoxide (as CO)	IS:-13270	1.7	137
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-29	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	09/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	CCR Heater
Stack Identification	-	Stack attached to CCR Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	68
Diameter of Stack (m)	-	2.5
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	195
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	7.93
Quantity of Emission (Nm^3/hr)	-	12000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	20.8	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	83.2	326
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	24.9	659
3.	Carbon Monoxide (as CO)	IS:-13270	11.1	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-24	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	FCCU Heater
Stack Identification	-	Stack attached to FCCU Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	80
Diameter of Stack (m)	-	1.75
Sampling Duration (Minutes)	-	53
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	205
Ambient Temperature (^oC)	-	29
Average Stack Velocity (m/s)	-	7.20
Quantity of Emission ($Nm^3/hr.$)	-	13500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	3.6	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	54.2	328
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	32.9	678
3.	Carbon Monoxide (as CO)	IS:-13270	14.1	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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ALKOM SYNERGY PVT. LTD. NOIDA

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-25	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	FCCU Regenerator
Stack Identification	-	Stack attached to FCCU Regenerator
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	42
Diameter of Stack (m)	-	3.3
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	215
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	14.82
Quantity of Emission (Nm^3/hr)	-	270000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	9.5	50
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	31.1	350
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	20.8	500
3.	Carbon Monoxide (as CO)	IS:-13270	8.3	300
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	2

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-22	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	CDU/VDU
Stack Identification	-	Stack attached to CDU/VDU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	85
Diameter of Stack (m)	-	4.3
Sampling Duration (Minutes)	-	52
Parameters Monitored	-	PM,NO_x, SO_2, CO,Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	167
Ambient Temperature (^oC)	-	30
Average Stack Velocity (m/s)	-	6.74
Quantity of Emission (Nm^3/hr)	-	160000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	12.1	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	26.7	326
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	101.3	659
3.	Carbon Monoxide (as CO)	IS:-13270	12.8	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-23	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	BBU
Stack Identification	-	Stack attached to BBU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	60
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	48
Parameters Monitored	-	PM,NO_x, SO_2, CO,
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	145
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	6.95
Quantity of Emission (Nm^3/hr)	-	530000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas (mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	1.2	5
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	16.8	250
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	23.1	50
4.	Carbon Monoxide (as CO)	IS:-13270	15.4	100

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-12	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	14/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HGU-1
Stack Identification	-	Stack attached to HGU-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	70
Diameter of Stack (m)	-	2.6
Sampling Duration (Minutes)	-	37
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	175
Ambient Temperature (^oC)	-	29
Average Stack Velocity (m/s)	-	9.59
Quantity of Emission ($Nm^3/hr.$)	-	89000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	12.1	42
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	9.7	330
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	3.9	693
3.	Carbon Monoxide (as CO)	IS:-13270	1.6	140
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-13	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	14/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari,Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HGU-2
Stack Identification	-	Stack attached to HGU-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	70
Diameter of Stack (m)	-	2.6
Sampling Duration (Minutes)	-	37
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	185
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	9.80
Quantity of Emission ($Nm^3/hr.$)	-	87000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	5.4	38
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	13.7	320
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	2.1	636
3.	Carbon Monoxide (as CO)	IS:-13270	1.26	137
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-14	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	14/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	Naphtha Super Heater
Stack Identification	-	Stack attached to Naphtha Super Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	30
Diameter of Stack (m)	-	1.2
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	290
Ambient Temperature (^oC)	-	34
Average Stack Velocity (m/s)	-	9.65
Quantity of Emission (Nm^3/hr)	-	15000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	11.1	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	26.7	329
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	15.3	679
3.	Carbon Monoxide (as CO)	IS:-13270	4.8	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-26	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	17/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-524
Stack Identification	-	Stack attached to SRU-524
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	290
Ambient Temperature (^oC)	-	30
Average Stack Velocity (m/s)	-	11.10
Quantity of Emission (Nm^3/hr)	-	9500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	39.5	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	958.1	NA
3.	Carbon Monoxide (as CO)	IS:-13270	13.4	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	2.8	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-27	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	17/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-525
Stack Identification	-	Stack attached to SRU-525
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	43
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	305
Ambient Temperature (^oC)	-	30
Average Stack Velocity (m/s)	-	10.49
Quantity of Emission (Nm^3/hr)	-	10500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	76.5	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	824.9	NA
3.	Carbon Monoxide (as CO)	IS:-13270	33.2	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	5.5	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-31	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	17/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DCU
Stack Identification	-	Stack attached to DCU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	65
Diameter of Stack (m)	-	3.15
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	165
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	8.73
Quantity of Emission (Nm^3/hr)	-	130000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.8	43
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	34.5	334
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	23.3	719
3.	Carbon Monoxide (as CO)	IS:-13270	2.9	142
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-32	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	18/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HRSG-1
Stack Identification	-	Stack attached to HRSG-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	35
Diameter of Stack (m)	-	3.5
Sampling Duration (Minutes)	-	33
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	175
Ambient Temperature (^oC)	-	32
Average Stack Velocity (m/s)	-	10.61
Quantity of Emission ($Nm^3/hr.$)	-	505000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	4.1	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	262.9	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	13.5	730
3.	Carbon Monoxide (as CO)	IS:-13270	12.2	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-30	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	18/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HRSG-2
Stack Identification	-	Stack attached to HRSG-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	35
Diameter of Stack (m)	-	3.5
Sampling Duration (Minutes)	-	34
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	34
Average Stack Velocity (m/s)	-	10.33
Quantity of Emission (Nm^3/hr)	-	400000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	6.7	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	179.5	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	9.2	730
3.	Carbon Monoxide (as CO)	IS:-13270	7.9	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-15	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	18/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-4
Stack Identification	-	Stack attached to UB-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100
Diameter of Stack (m)	-	3.1
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	132
Ambient Temperature (^oC)	-	35
Average Stack Velocity (m/s)	-	12.45
Quantity of Emission (Nm^3/hr)	-	209000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.8	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	134.2	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	1.28.7	730
3.	Carbon Monoxide (as CO)	IS:-13270	4.9	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-16	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	18/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-3
Stack Identification	-	Stack attached to UB-3
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100
Diameter of Stack (m)	-	3.1
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	130
Ambient Temperature (^oC)	-	35
Average Stack Velocity (m/s)	-	11.91
Quantity of Emission (Nm^3/hr)	-	245000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	3.1	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	127.3	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	120.5	730
3.	Carbon Monoxide (as CO)	IS:-13270	3.7	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-17	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	22/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-5
Stack Identification	-	Stack attached to UB-5
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	130
Diameter of Stack (m)	-	3.25
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	129
Ambient Temperature (^oC)	-	34
Average Stack Velocity (m/s)	-	12.02
Quantity of Emission (Nm^3/hr)	-	865000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Pet Cock Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	23.1	150
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	121.5	300
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	242.9	400

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-041124-18	04/11/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	22/10/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-6
Stack Identification	-	Stack attached to UB-6
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	130
Diameter of Stack (m)	-	3.25
Sampling Duration (Minutes)	-	25
Parameters Monitored	-	PM,NO_x, SO_2
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	130
Ambient Temperature (^oC)	-	34
Average Stack Velocity (m/s)	-	12.54
Quantity of Emission ($Nm^3/hr.$)	-	880000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Pet Cock Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	23.4	150
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	120.7	300
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	221.1	400

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-091224-12	09/12/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/11/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-524
Stack Identification	-	Stack attached to SRU-524
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	290
Ambient Temperature (^oC)	-	29
Average Stack Velocity (m/s)	-	11.23
Quantity of Emission (Nm^3/hr)	-	10600

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	41.6	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	1014.9	NA
3.	Carbon Monoxide (as CO)	IS:-13270	14.2	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	2.3	10

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-091224-13	09/12/2024

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/11/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-525
Stack Identification	-	Stack attached to SRU-525
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	43
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	305
Ambient Temperature (^oC)	-	28
Average Stack Velocity (m/s)	-	10.78
Quantity of Emission (Nm^3/hr)	-	10000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	65.4	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	921.9	NA
3.	Carbon Monoxide (as CO)	IS:-13270	30.5	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	4.2	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-15	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	02/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-524
Stack Identification	-	Stack attached to SRU-524
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	295
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	11.28
Quantity of Emission (Nm^3/hr)	-	10500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	41.8	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	982.5	NA
3.	Carbon Monoxide (as CO)	IS:-13270	11.1	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	3.2	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-16	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	02/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-525
Stack Identification	-	Stack attached to SRU-525
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	43
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	300
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	10.78
Quantity of Emission (Nm^3/hr)	-	10000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	70.9	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	796.1	NA
3.	Carbon Monoxide (as CO)	IS:-13270	31.6	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	4.2	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-24	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	03/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	VGO Heater
Stack Identification	-	Stack attached to VGO Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	65
Diameter of Stack (m)	-	2.25
Sampling Duration (Minutes)	-	41
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	175
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	8.31
Quantity of Emission ($Nm^3/hr.$)	-	89500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	10.8	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	89.3	328
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	31.9	676
3.	Carbon Monoxide (as CO)	IS:-13270	7.2	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-25	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	03/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DHDT-1
Stack Identification	-	Stack attached to DHDT-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	75
Diameter of Stack (m)	-	2.25
Sampling Duration (Minutes)	-	49
Parameters Monitored	-	PM,NO_x, SO_2, CO,Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	180
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	7.81
Quantity of Emission (Nm^3/hr)	-	52000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	11.8	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	72.1	327
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	46.5	666
3.	Carbon Monoxide (as CO)	IS:-13270	8.9	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-27	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	05/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	CDU/VDU
Stack Identification	-	Stack attached to CDU/VDU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	85
Diameter of Stack (m)	-	4.3
Sampling Duration (Minutes)	-	53
Parameters Monitored	-	PM,NO_x, SO_2, CO,Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	7.42
Quantity of Emission (Nm^3/hr)	-	158000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	11.5	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	24.3	326
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	99.7	659
3.	Carbon Monoxide (as CO)	IS:-13270	10.9	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-28	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	05/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	BBU
Stack Identification	-	Stack attached to BBU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	60
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	47
Parameters Monitored	-	PM,NO_x, SO_2, CO,
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	148
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	7.28
Quantity of Emission (Nm^3/hr)	-	525000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas (mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	1.8	5
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	15.1	250
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	22.5	50
4.	Carbon Monoxide (as CO)	IS:-13270	14.3	100

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-35	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	06/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HRSG-1
Stack Identification	-	Stack attached to HRSG-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	35
Diameter of Stack (m)	-	3.5
Sampling Duration (Minutes)	-	34
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	9.62
Quantity of Emission ($Nm^3/hr.$)	-	500000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	3.6	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	254.1	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	11.8	730
3.	Carbon Monoxide (as CO)	IS:-13270	11.2	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-33	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	06/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HRSG-2
Stack Identification	-	Stack attached to HRSG-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	35
Diameter of Stack (m)	-	3.5
Sampling Duration (Minutes)	-	33
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	165
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	9.32
Quantity of Emission (Nm^3/hr)	-	390000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	5.8	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	175.6	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	8.4	730
3.	Carbon Monoxide (as CO)	IS:-13270	7.1	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-20	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	09/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-4
Stack Identification	-	Stack attached to UB-4
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100
Diameter of Stack (m)	-	3.1
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	135
Ambient Temperature (^oC)	-	23
Average Stack Velocity (m/s)	-	12.67
Quantity of Emission (Nm^3/hr)	-	207500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	3.6	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	138.1	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	130.5	730
3.	Carbon Monoxide (as CO)	IS:-13270	6.1	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-21	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	09/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-3
Stack Identification	-	Stack attached to UB-3
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100
Diameter of Stack (m)	-	3.1
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	132
Ambient Temperature (^oC)	-	23
Average Stack Velocity (m/s)	-	12.47
Quantity of Emission (Nm^3/hr)	-	238000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	4.4	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	130.1	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	125.5	730
3.	Carbon Monoxide (as CO)	IS:-13270	4.9	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-22	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-5
Stack Identification	-	Stack attached to UB-5
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	130
Diameter of Stack (m)	-	3.25
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM,NO_x, SO_2
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	136
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	12.13
Quantity of Emission (Nm^3/hr)	-	848000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Pet Cock Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	25.4	150
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	123.9	300
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	240.1	400

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-23	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-6
Stack Identification	-	Stack attached to UB-6
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	130
Diameter of Stack (m)	-	3.25
Sampling Duration (Minutes)	-	25
Parameters Monitored	-	PM,NO_x, SO_2
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	140
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	12.35
Quantity of Emission ($Nm^3/hr.$)	-	865000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Pet Cock Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	21.0	150
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	118.6	300
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	126.2	400

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-31	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	NHT Reactor
Stack Identification	-	Stack attached to NHT Reactor
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	50
Diameter of Stack (m)	-	1.2
Sampling Duration (Minutes)	-	47
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	315
Ambient Temperature (^oC)	-	18
Average Stack Velocity (m/s)	-	9.27
Quantity of Emission (Nm^3/hr)	-	9000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	6.8	39
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	21.5	324
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	16.8	645
3.	Carbon Monoxide (as CO)	IS:-13270	1.3	137
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-32	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	CCR Heater
Stack Identification	-	Stack attached to CCR Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	68
Diameter of Stack (m)	-	2.5
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	190
Ambient Temperature (^oC)	-	18
Average Stack Velocity (m/s)	-	8.19
Quantity of Emission (Nm^3/hr)	-	11500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	18.2	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	81.9	326
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	23.4	659
3.	Carbon Monoxide (as CO)	IS:-13270	10.6	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-26	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DHDT-2
Stack Identification	-	Stack attached to DHDT-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	60
Diameter of Stack (m)	-	1.46
Sampling Duration (Minutes)	-	42
Parameters Monitored	-	PM,NO_x, SO_2, CO
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	176
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	8.46
Quantity of Emission (Nm^3/hr)	-	11000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas (mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.9	5
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	23.4	250
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	7.9	50
4.	Carbon Monoxide (as CO)	IS:-13270	6.7	100

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-29	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	12/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	FCCU Heater
Stack Identification	-	Stack attached to FCCU Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	80
Diameter of Stack (m)	-	1.75
Sampling Duration (Minutes)	-	52
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	210
Ambient Temperature (^oC)	-	18
Average Stack Velocity (m/s)	-	8.23
Quantity of Emission ($Nm^3/hr.$)	-	12800

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.9	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	52.1	328
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	30.8	678
3.	Carbon Monoxide (as CO)	IS:-13270	12.6	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-30	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	12/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	FCCU Regenerator
Stack Identification	-	Stack attached to FCCU Regenerator
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	42
Diameter of Stack (m)	-	3.3
Sampling Duration (Minutes)	-	25
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	205
Ambient Temperature (^oC)	-	19
Average Stack Velocity (m/s)	-	13.96
Quantity of Emission (Nm^3/hr)	-	265000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	8.8	50
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	29.6	350
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	19.1	500
3.	Carbon Monoxide (as CO)	IS:-13270	7.8	300
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	2

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-34	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DCU
Stack Identification	-	Stack attached to DCU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	65
Diameter of Stack (m)	-	3.15
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	175
Ambient Temperature (^oC)	-	17
Average Stack Velocity (m/s)	-	9.35
Quantity of Emission (Nm^3/hr)	-	135000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	3.2	43
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	36.9	334
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	25.1	719
3.	Carbon Monoxide (as CO)	IS:-13270	3.5	142
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-17	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	16/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HGU-1
Stack Identification	-	Stack attached to HGU-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	70
Diameter of Stack (m)	-	2.6
Sampling Duration (Minutes)	-	33
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	9.03
Quantity of Emission ($Nm^3/hr.$)	-	88500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	10.6	42
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	8.1	330
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	4.5	693
3.	Carbon Monoxide (as CO)	IS:-13270	1.2	140
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060125-18	06/01/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	16/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari,Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HGU-2
Stack Identification	-	Stack attached to HGU-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	70
Diameter of Stack (m)	-	2.6
Sampling Duration (Minutes)	-	34
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	180
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	9.50
Quantity of Emission ($Nm^3/hr.$)	-	85500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	4.8	38
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	12.1	320
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	3.3	636
3.	Carbon Monoxide (as CO)	IS:-13270	1.84	137
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	**ST-060125-19**	**06/01/2025**

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	16/12/2024
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	Naphtha Super Heater
Stack Identification	-	Stack attached to Naphtha Super Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	30
Diameter of Stack (m)	-	1.2
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM,NO_x, SO_2, CO, Ni& V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	305
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	10.34
Quantity of Emission (Nm^3/hr)	-	14800

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	10.5	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	24.2	329
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	16.7	679
3.	Carbon Monoxide (as CO)	IS:-13270	5.5	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-050225-27	05/02/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	31/01/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-524
Stack Identification	-	Stack attached to SRU-524
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	290
Ambient Temperature (^oC)	-	17
Average Stack Velocity (m/s)	-	11.74
Quantity of Emission (Nm^3/hr)	-	12000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255(PART:-7)	43.1	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	1021.8	NA
3.	Carbon Monoxide (as CO)	IS:-13270	13.4	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	3.9	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-050225-28	05/02/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	31/01/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-525
Stack Identification	-	Stack attached to SRU-525
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	42
Parameters Monitored	-	NO_x, SO_2, CO, H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	295
Ambient Temperature (^oC)	-	17
Average Stack Velocity (m/s)	-	12.01
Quantity of Emission (Nm^3/hr)	-	11500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	74.2	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	921.5	NA
3.	Carbon Monoxide (as CO)	IS:-13270	33.7	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	4.2	10

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TEST REPORT

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Email: info@alkom.in, www.alkomsynergy.com

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-43	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	05/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	NHT Reactor
Stack Identification	-	Stack attached to NHT Reactor
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	50
Diameter of Stack (m)	-	1.2
Sampling Duration (Minutes)	-	48
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	310
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	9.61
Quantity of Emission (Nm^3/hr)	-	9500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	7.2	39
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	22.9	324
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	17.1	645
3.	Carbon Monoxide (as CO)	IS:-13270	1.6	137
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-44	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	05/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	CCR Heater
Stack Identification	-	Stack attached to CCR Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	68
Diameter of Stack (m)	-	2.5
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	195
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	8.10
Quantity of Emission (Nm^3/hr)	-	12500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	19.8	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	82.3	326
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	24.5	659
3.	Carbon Monoxide (as CO)	IS:-13270	11.1	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-46	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	05/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DCU
Stack Identification	-	Stack attached to DCU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	65
Diameter of Stack (m)	-	3.15
Sampling Duration (Minutes)	-	40
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	167
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	8.40
Quantity of Emission (Nm^3/hr)	-	134500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	3.8	43
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	35.1	334
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	14.9	719
3.	Carbon Monoxide (as CO)	IS:-13270	2.6	142
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-39	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	06/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	CDU/VDU
Stack Identification	-	Stack attached to CDU/VDU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	85
Diameter of Stack (m)	-	4.3
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	7.42
Quantity of Emission (Nm^3/hr)	-	162000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	13.4	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	26.1	326
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	102.8	659
3.	Carbon Monoxide (as CO)	IS:-13270	11.6	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-40	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	06/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	BBU
Stack Identification	-	Stack attached to BBU
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	60
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	47
Parameters Monitored	-	PM, NO_x, SO_2 & CO,
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	145
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	7.26
Quantity of Emission (Nm^3/hr)	-	518000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas (mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	1.4	5
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	14.2	250
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	21.9	50
4.	Carbon Monoxide (as CO)	IS:-13270	12.5	100

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-36	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	07/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	VGO Heater
Stack Identification	-	Stack attached to VGO Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	65
Diameter of Stack (m)	-	2.25
Sampling Duration (Minutes)	-	42
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	175
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	8.38
Quantity of Emission ($Nm^3/hr.$)	-	88200

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	9.4	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	83.7	328
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	28.5	676
3.	Carbon Monoxide (as CO)	IS:-13270	6.9	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-37	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	07/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DHDT-1
Stack Identification	-	Stack attached to DHDT-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	75
Diameter of Stack (m)	-	2.25
Sampling Duration (Minutes)	-	43
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	185
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	8.21
Quantity of Emission (Nm^3/hr)	-	51500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	10.2	40
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	71.5	327
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	44.9	666
3.	Carbon Monoxide (as CO)	IS:-13270	7.4	138
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-38	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	07/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	DHDT-2
Stack Identification	-	Stack attached to DHDT-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	60
Diameter of Stack (m)	-	1.46
Sampling Duration (Minutes)	-	38
Parameters Monitored	-	PM, NO_x, SO_2 & CO
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	185
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	9.50
Quantity of Emission (Nm^3/hr)	-	10800

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas (mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.5	5
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	22.1	250
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	7.4	50
4.	Carbon Monoxide (as CO)	IS:-13270	6.0	100

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-29	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HGU-1
Stack Identification	-	Stack attached to HGU-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	70
Diameter of Stack (m)	-	2.6
Sampling Duration (Minutes)	-	38
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	180
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	9.21
Quantity of Emission ($Nm^3/hr.$)	-	89000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	11.3	42
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	9.5	330
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	4.1	693
3.	Carbon Monoxide (as CO)	IS:-13270	2.2	140
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-30	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari,Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HGU-2
Stack Identification	-	Stack attached to HGU-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	70
Diameter of Stack (m)	-	2.6
Sampling Duration (Minutes)	-	37
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	185
Ambient Temperature (^oC)	-	21
Average Stack Velocity (m/s)	-	9.55
Quantity of Emission ($Nm^3/hr.$)	-	86500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	5.3	38
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	13.8	320
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	3.5	636
3.	Carbon Monoxide (as CO)	IS:-13270	1.96	137
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-31	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	10/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	Naphtha Super Heater
Stack Identification	-	Stack attached to Naphtha Super Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	30
Diameter of Stack (m)	-	1.2
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	295
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	10.29
Quantity of Emission (Nm^3/hr)	-	15600

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	11.7	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	25.9	329
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	17.2	679
3.	Carbon Monoxide (as CO)	IS:-13270	6.1	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-41	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	FCCU Heater
Stack Identification	-	Stack attached to FCCU Heater
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	80
Diameter of Stack (m)	-	1.75
Sampling Duration (Minutes)	-	45
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	195
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	7.93
Quantity of Emission ($Nm^3/hr.$)	-	12000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	2.3	41
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	50.6	328
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	28.8	678
3.	Carbon Monoxide (as CO)	IS:-13270	10.4	139
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-42	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	11/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	FCCU Regenerator
Stack Identification	-	Stack attached to FCCU Regenerator
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	42
Diameter of Stack (m)	-	3.3
Sampling Duration (Minutes)	-	33
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	210
Ambient Temperature (^oC)	-	23
Average Stack Velocity (m/s)	-	14.74
Quantity of Emission (Nm^3/hr)	-	248000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	7.6	50
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	27.1	350
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	18.7	500
3.	Carbon Monoxide (as CO)	IS:-13270	6.9	300
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	2

End of Report

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TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-45	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	12/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HRSG-2
Stack Identification	-	Stack attached to HRSG-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	35
Diameter of Stack (m)	-	3.5
Sampling Duration (Minutes)	-	33
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	22
Average Stack Velocity (m/s)	-	10.33
Quantity of Emission (Nm^3/hr)	-	385000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	6.4	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	177.1	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	9.5	730
3.	Carbon Monoxide (as CO)	IS:-13270	7.8	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

End of Report

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-47	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	12/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	HRSG-1
Stack Identification	-	Stack attached to HRSG-1
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	35
Diameter of Stack (m)	-	3.5
Sampling Duration (Minutes)	-	34
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	170
Ambient Temperature (^oC)	-	20
Average Stack Velocity (m/s)	-	9.65
Quantity of Emission ($Nm^3/hr.$)	-	510000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	4.2	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	261.9	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	10.4	730
3.	Carbon Monoxide (as CO)	IS:-13270	13.7	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-35	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-6
Stack Identification	-	Stack attached to UB-6
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	130
Diameter of Stack (m)	-	3.25
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM, NO_x & SO_2
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	130
Ambient Temperature (^oC)	-	31
Average Stack Velocity (m/s)	-	12.04
Quantity of Emission ($Nm^3/hr.$)	-	848000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Pet Cock Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	19.5	150
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	112.3	300
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	121.7	400

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-34	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-5
Stack Identification	-	Stack attached to UB-5
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	130
Diameter of Stack (m)	-	3.25
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM, NO_x & SO_2
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	135
Ambient Temperature (^oC)	-	31
Average Stack Velocity (m/s)	-	12.62
Quantity of Emission (Nm^3/hr)	-	864000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Pet Cock Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	27.2	150
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	128.5	300
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	243.9	400

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-33	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-3
Stack Identification	-	Stack attached to UB-3
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100
Diameter of Stack (m)	-	3.1
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	132
Ambient Temperature (^oC)	-	30
Average Stack Velocity (m/s)	-	12.45
Quantity of Emission (Nm^3/hr)	-	243000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	5.2	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	134.9	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	127.2	730
3.	Carbon Monoxide (as CO)	IS:-13270	5.5	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-32	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	UB-2
Stack Identification	-	Stack attached to UB-2
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100
Diameter of Stack (m)	-	3.1
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	PM, NO_x, SO_2, CO, Ni & V
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	130
Ambient Temperature (^oC)	-	30
Average Stack Velocity (m/s)	-	12.00
Quantity of Emission (Nm^3/hr)	-	216000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Mixed Fuel Limits (in mg/Nm^3)
1.	Particulate Matters (as PM)	IS:-11255 (PART:-1)	4.1	44
2.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	142.5	335
3.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	136.8	730
3.	Carbon Monoxide (as CO)	IS:-13270	7.5	143
5.	Nickel & Vanadium (as Ni & V)	USEPA Method 29 By AAS	BDL	5

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-27	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-524
Stack Identification	-	Stack attached to SRU-524
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	NO_x, SO_2, CO & H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	290
Ambient Temperature (^oC)	-	24
Average Stack Velocity (m/s)	-	17.02
Quantity of Emission (Nm^3/hr)	-	11000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	43.9	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	1016.1	NA
3.	Carbon Monoxide (as CO)	IS:-13270	12.9	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	4.1	10

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TEST REPORT

Test Report of	Report Code	Date of Issue
Stack Emission	ST-060325-28	06/03/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/02/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-525
Stack Identification	-	Stack attached to SRU-525
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	29
Parameters Monitored	-	NO_x, SO_2, CO & H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	305
Ambient Temperature (^oC)	-	24
Average Stack Velocity (m/s)	-	15.89
Quantity of Emission (Nm^3/hr)	-	10500

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	72.4	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	896.8	NA
3.	Carbon Monoxide (as CO)	IS:-13270	32.9	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	4.7	10

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	**ST-070425-28**	**07/04/2025**

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/03/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari , Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-525
Stack Identification	-	Stack attached to SRU-525
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	29
Parameters Monitored	-	NO_x, SO_2, CO & H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	305
Ambient Temperature (^oC)	-	24
Average Stack Velocity (m/s)	-	15.89
Quantity of Emission (Nm^3/hr)	-	10000

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	50.2	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	816.7	NA
3.	Carbon Monoxide (as CO)	IS:-13270	30.5	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	4.0	10

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TEST REPORT

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Test Report of	Report Code	Date of Issue
Stack Emission	ST-070425-27	07/04/2025

SAMPLING & ANALYSIS DATA

Description	-	Stack Emission Monitoring conducted by our team.
Date of Sampling	-	13/03/2025
Name & Address of the Industry	-	**M/s HPCL-Mittal Energy Limited, Village-Phullokhari, Taluka – Talwandi Saboo, Distt. Bhatinda (Punjab) India**
Emission Source Monitored	-	SRU-524
Stack Identification	-	Stack attached to SRU-524
Normal Operating Schedule	-	As per requirement
Type of Stack (ACC/Metal)	-	Mild Steel
Stack Height From Ground Level (meter)	-	100.0
Diameter of Stack (m)	-	2.0
Sampling Duration (Minutes)	-	26
Parameters Monitored	-	NO_x, SO_2, CO & H_2S
Purpose of Monitoring	-	Assessment of Pollution load
General Sensory Observations	-	Normal
Fugitive Emission (if any)	-	Nil
Stack Temperature (^oC)	-	290
Ambient Temperature (^oC)	-	24
Average Stack Velocity (m/s)	-	17.02
Quantity of Emission (Nm^3/hr)	-	11800

TEST RESULT

S.N.	Parameter	Test Method	Results (mg/Nm^3)	Limits for 100 % Fuel Gas(mg/Nm^3)
1.	Oxide of Nitrogen (as NOx)	IS:-11255 (PART:-7)	45.1	250
2.	Oxides of Sulphur (as SO_2)	IS:-11255 (PART:-2)	1124.8	NA
3.	Carbon Monoxide (as CO)	IS:-13270	14.2	100
4.	Hydrogen Sulphide (as H2S)	IS:-11255 (PART:-4)	3.5	10

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ANNEXURE-VI

ALKOM SYNERGY PVT LTD

NABL Accredited (Certificate No. TC-9580), ISO 9001, 14001, 45001, and OHSAS 18001 Certified Laboratory
MOEF & CC (Ministry of Environment Forests & Climate Change) Recognized Laboratory

TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-041124-45	04/11/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 23/10/2024
Sample Collected By : Laboratory
Sample Description : **Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 24/10/2024 To 04/11/2024

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.46	6.0-8.5	IS:-3025 (P:-11)
2	Total Suspended Solids (TSS)	mg/L	13.3	20.0	APHA:-23rd Ed.
3	Chemical Oxygen Demand (COD)	mg/L	56.1	125.0	APHA:-23rdEd.
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	BDL	15.0	IS:-3025 (P:-44)
5	Oil & Grease (O&G)	mg/L	1.16	5.0	APHA:-23rdEd.
6	Phenolic Compounds(C6H5OH)	mg/L	0.14	0.35	APHA:-5530:-C
7	Sulphide (S)	mg/L	0.3	0.5	APHA:-23rd Ed.
8	Total Kjeldahl Nitrogen (NH3)	mg/L	0.55	40	APHA:-23rd Ed.
9	Phosphate	mg/L	1.23	3.0	APHA:-23rd Ed.
10	Chromium Hexavalent ($Cr^{+}6$)	mg/L	BDL	0.1	APHA:-23rd Ed.
11	Copper (Cu)	mg/L	BDL	1.0	APHA:-23rd Ed.
12	Lead (Pb)	mg/L	BDL	0.1	APHA:-23rd Ed.
13	Mercury (Hg)	mg/L	BDL	0.01	APHA:-23rd Ed.
14	Zinc (Zn)	mg/L	BDL	5.0	APHA:-23rd Ed.
15	Nickel (Ni)	mg/L	BDL	1.0	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-041124-46	04/11/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	23/10/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	24/10/2024 To 04/11/2024

Sr.No.	Parameter	Unit	Result	Permissible Limits	Protocol
16	Ammonia (N)	mg/L	7.28	15.0	APHA:-23rd Ed.
17	Cyanide (CN)	mg/L	BDL	0.20	APHA:-23rd Ed.
18	Total Chromium	mg/L	BDL	2.0	APHA:-23rd Ed.
19	Vanadium (V)	mg/L	BDL	0.2	APHA:-23rd Ed.
20	Benzene	mg/L	BDL	0.1	USEPA:-8260:-C
21	Benzo(a)-Pyreen	mg/L	BDL	0.2	USEPA:-8260:-C

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NABL Accredited (Certificate No. TC-9580), ISO 9001, 14001, 45001, and OHSAS 18001 Certified Laboratory
MOEF & CC (Ministry of Environment Forests & Climate Change) Recognized Laboratory

TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-041124-47	04/11/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	23/10/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	24/10/2024 To 04/11/2024

Sr. No.	Parameters	Unit	Test Result	Protocol
1	Bioassay Toxic Test	%	95% Survival of fish after 96 hours in 100% effluent	IS:-6582

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Laboratory:- C-212, 2nd & 3rd Floor, Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-041124-48	04/11/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	23/10/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (STP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	24/10/2024 To 04/11/2024

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
1	pH	-	7.36	6.5 to 9.0	APHA:-23rd Ed.
2	Temperature	°C	23.1	-	APHA:-23rd Ed.
3	TSS	mg/l	6.8	≤10mg/l	APHA:-23rd Ed.
4	COD	mg/l	27.1	≤50mg/l	APHA:-23rd Ed.
5	BOD	mg/l	6.5	≤10mg/l	IS:-3025 (P:-44)
6	O & G	mg/l	BDL	≤5mg/l	APHA:-23rd Ed.
7	Ammonical Nitrogen as N*	mg/l	1.46	≤5mg/l	APHA:-23rd Ed.
8	PO4-P*	mg/l	0.42	≤2mg/l	APHA:-23rd Ed.
9	N-total*	mg/l	5.26	≤10mg/l	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-091224-19	09/12/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 26/11/2024
Sample Collected By : Laboratory
Sample Description : **Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 27/11/2024 To 02/12/2024

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.58	6.0-8.5	IS:-3025 (P:-11)
2	Total Suspended Solids (TSS)	mg/L	14.7	20.0	APHA:-23rd Ed.
3	Chemical Oxygen Demand (COD)	mg/L	57.2	125.0	APHA:-23rdEd.
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	BDL	15.0	IS:-3025 (P:-44)
5	Oil & Grease (O&G)	mg/L	1.25	5.0	APHA:-23rdEd.
6	Phenolic Compounds(C6H5OH)	mg/L	0.19	0.35	APHA:-5530:-C
7	Sulphide (S)	mg/L	0.2	0.5	APHA:-23rd Ed.
8	Total Kjeldahl Nitrogen (NH3)	mg/L	0.56	40	APHA:-23rd Ed.
9	Phosphate	mg/L	1.72	3.0	APHA:-23rd Ed.
10	Chromium Hexavalent ($Cr^{+}6$)	mg/L	BDL	0.1	APHA:-23rd Ed.
11	Copper (Cu)	mg/L	BDL	1.0	APHA:-23rd Ed.
12	Lead (Pb)	mg/L	BDL	0.1	APHA:-23rd Ed.
13	Mercury (Hg)	mg/L	BDL	0.01	APHA:-23rd Ed.
14	Zinc (Zn)	mg/L	BDL	5.0	APHA:-23rd Ed.
15	Nickel (Ni)	mg/L	BDL	1.0	APHA:-23rd Ed.

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-091224-20	09/12/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	26/11/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	27/11/2024 To 02/12/2024

Sr.No.	Parameter	Unit	Result	Permissible Limits	Protocol
16	Ammonia (N)	mg/L	7.45	15.0	APHA:-23rd Ed.
17	Cyanide (CN)	mg/L	BDL	0.20	APHA:-23rd Ed.
18	Total Chromium	mg/L	BDL	2.0	APHA:-23rd Ed.
19	Vanadium (V)	mg/L	BDL	0.2	APHA:-23rd Ed.
20	Benzene	mg/L	BDL	0.1	USEPA:-8260:-C
21	Benzo(a)-Pyreen	mg/L	BDL	0.2	USEPA:-8260:-C

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-091224-21	09/12/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	26/11/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	27/11/2024 To 02/12/2024

Sr. No.	Parameters	Unit	Test Result	Protocol
1	Bioassay Toxic Test	%	92% Survival of fish 96 hours in 100% effluent	IS:-6582

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-091224-22	09/12/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	26/11/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (STP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	27/11/2024 To 02/12/2024

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
1	pH	-	7.41	6.5 to 9.0	APHA:-23rd Ed.
2	Temperature	°C	23.9	-	APHA:-23rd Ed.
3	TSS	mg/l	7.2	≤10mg/l	APHA:-23rd Ed.
4	COD	mg/l	28.9	≤50mg/l	APHA:-23rd Ed.
5	BOD	mg/l	7.5	≤10mg/l	IS:-3025 (P:-44)
6	O & G	mg/l	BDL	≤5mg/l	APHA:-23rd Ed.
7	Ammonical Nitrogen as N*	mg/l	1.73	≤5mg/l	APHA:-23rd Ed.
8	PO4-P*	mg/l	0.51	≤2mg/l	APHA:-23rd Ed.
9	N-total*	mg/l	6.27	≤10mg/l	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060125-45	06/01/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 11/12/2024
Sample Collected By : Laboratory
Sample Description : **Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 13/12/2024 To 06/01/2025

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.41	6.0-8.5	IS:-3025 (P:-11)
2	Total Suspended Solids (TSS)	mg/L	12.6	20.0	APHA:-23rd Ed.
3	Chemical Oxygen Demand (COD)	mg/L	54.2	125.0	APHA:-23rdEd.
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	BDL	15.0	IS:-3025 (P:-44)
5	Oil & Grease (O&G)	mg/L	1.21	5.0	APHA:-23rdEd.
6	Phenolic Compounds(C6H5OH)	mg/L	0.18	0.35	APHA:-5530:-C
7	Sulphide (S)	mg/L	0.2	0.5	APHA:-23rd Ed.
8	Total Kjeldahl Nitrogen (NH3)	mg/L	0.49	40	APHA:-23rd Ed.
9	Phosphate	mg/L	1.52	3.0	APHA:-23rd Ed.
10	Chromium Hexavalent (Cr^{+6})	mg/L	BDL	0.1	APHA:-23rd Ed.
11	Copper (Cu)	mg/L	BDL	1.0	APHA:-23rd Ed.
12	Lead (Pb)	mg/L	BDL	0.1	APHA:-23rd Ed.
13	Mercury (Hg)	mg/L	BDL	0.01	APHA:-23rd Ed.
14	Zinc (Zn)	mg/L	BDL	5.0	APHA:-23rd Ed.
15	Nickel (Ni)	mg/L	BDL	1.0	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060125-46	06/01/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	11/12/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	13/12/2024 To 06/01/2025

Sr.No.	Parameter	Unit	Result	Permissible Limits	Protocol
16	Ammonia (N)	mg/L	7.36	15.0	APHA:-23rd Ed.
17	Cyanide (CN)	mg/L	BDL	0.20	APHA:-23rd Ed.
18	Total Chromium	mg/L	BDL	2.0	APHA:-23rd Ed.
19	Vanadium (V)	mg/L	BDL	0.2	APHA:-23rd Ed.
20	Benzene	mg/L	BDL	0.1	USEPA:-8260:-C
21	Benzo(a)-Pyreen	mg/L	BDL	0.2	USEPA:-8260:-C

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060125-47	06/01/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	11/12/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	13/12/2024 To 06/01/2025

Sr. No.	Parameters	Unit	Test Result	Protocol
1	Bioassay Toxic Test	%	97% Survival of fish after 96 hours in 100% effluent	IS:-6582

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060125-48	06/01/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	11/12/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (STP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	13/12/2024 To 06/01/2025

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
1	pH	-	7.41	6.5 to 9.0	APHA:-23rd Ed.
2	Temperature	°C	22.6	-	APHA:-23rd Ed.
3	TSS	mg/l	7.2	≤10mg/l	APHA:-23rd Ed.
4	COD	mg/l	26.9	≤50mg/l	APHA:-23rd Ed.
5	BOD	mg/l	7.2	≤10mg/l	IS:-3025 (P:-44)
6	O & G	mg/l	BDL	≤5mg/l	APHA:-23rd Ed.
7	Ammonical Nitrogen as N*	mg/l	1.78	≤5mg/l	APHA:-23rd Ed.
8	PO4-P*	mg/l	0.45	≤2mg/l	APHA:-23rd Ed.
9	N-total*	mg/l	5.08	≤10mg/l	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-050225-17	05/02/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 24/01/2025
Sample Collected By : Laboratory
Sample Description : **Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 25/01/2025 To 05/02/2025

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.36	6.0-8.5	IS:-3025 (P:-11)
2	Total Suspended Solids (TSS)	mg/L	14.1	20.0	APHA:-23rd Ed.
3	Chemical Oxygen Demand (COD)	mg/L	58.7	125.0	APHA:-23rdEd.
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	BDL	15.0	IS:-3025 (P:-44)
5	Oil & Grease (O&G)	mg/L	1.16	5.0	APHA:-23rdEd.
6	Phenolic Compounds(C6H5OH)	mg/L	0.15	0.35	APHA:-5530:-C
7	Sulphide (S)	mg/L	0.1	0.5	APHA:-23rd Ed.
8	Total Kjeldahl Nitrogen (NH3)	mg/L	0.71	40	APHA:-23rd Ed.
9	Phosphate	mg/L	1.83	3.0	APHA:-23rd Ed.
10	Chromium Hexavalent (Cr^{+6})	mg/L	BDL	0.1	APHA:-23rd Ed.
11	Copper (Cu)	mg/L	BDL	1.0	APHA:-23rd Ed.
12	Lead (Pb)	mg/L	BDL	0.1	APHA:-23rd Ed.
13	Mercury (Hg)	mg/L	BDL	0.01	APHA:-23rd Ed.
14	Zinc (Zn)	mg/L	BDL	5.0	APHA:-23rd Ed.
15	Nickel (Ni)	mg/L	BDL	1.0	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-050225-18	05/02/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	24/01/2024
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	25/01/2025 To 05/02/2025

Sr.No.	Parameter	Unit	Result	Permissible Limits	Protocol
16	Ammonia (N)	mg/L	7.45	15.0	APHA:-23rd Ed.
17	Cyanide (CN)	mg/L	BDL	0.20	APHA:-23rd Ed.
18	Total Chromium	mg/L	BDL	2.0	APHA:-23rd Ed.
19	Vanadium (V)	mg/L	BDL	0.2	APHA:-23rd Ed.
20	Benzene	mg/L	BDL	0.1	USEPA:-8260:-C
21	Benzo(a)-Pyreen	mg/L	BDL	0.2	USEPA:-8260:-C

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-050225-19	05/02/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	24/01/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	25/01/2025 To 05/02/2025

Sr. No.	Parameters	Unit	Test Result	Protocol
1	Bioassay Toxic Test	%	91% Survival of fish after 96 hours in 100% effluent	IS:-6582

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-050225-20	05/02/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	24/01/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (STP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	25/01/2025 To 05/02/2025

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
1	pH	-	7.36	6.5 to 9.0	APHA:-23rd Ed.
2	Temperature	°C	23.9	-	APHA:-23rd Ed.
3	TSS	mg/l	6.5	≤10mg/l	APHA:-23rd Ed.
4	COD	mg/l	25.1	≤50mg/l	APHA:-23rd Ed.
5	BOD	mg/l	6.0	≤10mg/l	IS:-3025 (P:-44)
6	O & G	mg/l	BDL	≤5mg/l	APHA:-23rd Ed.
7	Ammonical Nitrogen as N*	mg/l	7.46	≤5mg/l	APHA:-23rd Ed.
8	PO4-P*	mg/l	0.38	≤2mg/l	APHA:-23rd Ed.
9	N-total*	mg/l	4.92	≤10mg/l	APHA:-23rd Ed.

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060325-17	06/03/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 19/02/2025
Sample Collected By : Laboratory
Sample Description : **Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 21/02/2025 To 06/03/2025

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.32	6.0-8.5	IS:-3025 (P:-11)
2	Total Suspended Solids (TSS)	mg/L	13.5	20.0	APHA:-23rd Ed.
3	Chemical Oxygen Demand (COD)	mg/L	62.9	125.0	APHA:-23rd Ed.
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	BDL	15.0	IS:-3025 (P:-44)
5	Oil & Grease (O&G)	mg/L	1.46	5.0	APHA:-23rd Ed.
6	Phenolic Compounds(C6H5OH)	mg/L	0.28	0.35	APHA:-5530:-C
7	Sulphide (S)	mg/L	0.2	0.5	APHA:-23rd Ed.
8	Total Kjeldahl Nitrogen (NH3)	mg/L	0.64	40	APHA:-23rd Ed.
9	Phosphate	mg/L	1.71	3.0	APHA:-23rd Ed.
10	Chromium Hexavalent (Cr^{+6})	mg/L	BDL	0.1	APHA:-23rd Ed.
11	Copper (Cu)	mg/L	BDL	1.0	APHA:-23rd Ed.
12	Lead (Pb)	mg/L	BDL	0.1	APHA:-23rd Ed.
13	Mercury (Hg)	mg/L	BDL	0.01	APHA:-23rd Ed.
14	Zinc (Zn)	mg/L	BDL	5.0	APHA:-23rd Ed.
15	Nickel (Ni)	mg/L	BDL	1.0	APHA:-23rd Ed.

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Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060325-18	06/03/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	19/02/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	21/02/2025 To 06/03/2025

Sr.No.	Parameter	Unit	Result	Permissible Limits	Protocol
16	Ammonia (N)	mg/L	7.38	15.0	APHA:-23rd Ed.
17	Cyanide (CN)	mg/L	BDL	0.20	APHA:-23rd Ed.
18	Total Chromium	mg/L	BDL	2.0	APHA:-23rd Ed.
19	Vanadium (V)	mg/L	BDL	0.2	APHA:-23rd Ed.
20	Benzene	mg/L	BDL	0.1	USEPA:-8260:-C
21	Benzo(a)-Pyreen	mg/L	BDL	0.2	USEPA:-8260:-C

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060325-19	06/03/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	19/02/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	21/02/2025 To 06/03/2025

Sr. No.	Parameters	Unit	Test Result	Protocol
1	Bioassay Toxic Test	%	95% Survival of fish after 96 hours in 100% effluent	IS:-6582

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-060325-20	06/03/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 19/02/2025
Sample Collected By : Laboratory
Sample Description : **Waste Water (STP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 21/02/2025 To 06/03/2025

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
1	pH	-	7.31	6.5 to 9.0	APHA:-23rd Ed.
2	Temperature	°C	24.6	-	APHA:-23rd Ed.
3	TSS	mg/l	5.9	≤10mg/l	APHA:-23rd Ed.
4	COD	mg/l	24.5	≤50mg/l	APHA:-23rd Ed.
5	BOD	mg/l	5.2	≤10mg/l	IS:-3025 (P:-44)
6	O & G	mg/l	BDL	≤5mg/l	APHA:-23rd Ed.
7	Ammonical Nitrogen as N*	mg/l	7.38	≤5mg/l	APHA:-23rd Ed.
8	PO4-P*	mg/l	0.35	≤2mg/l	APHA:-23rd Ed.
9	N-total*	mg/l	4.29	≤10mg/l	APHA:-23rd Ed.

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-070425-17	07/04/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 14/03/2025
Sample Collected By : Laboratory
Sample Description : **Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 17/03/2025 To 07/04/2025

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol
1	pH	...	7.26	6.0-8.5	IS:-3025 (P:-11)
2	Total Suspended Solids (TSS)	mg/L	11.9	20.0	APHA:-23rd Ed.
3	Chemical Oxygen Demand (COD)	mg/L	68.0	125.0	APHA:-23rd Ed.
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	BDL	15.0	IS:-3025 (P:-44)
5	Oil & Grease (O&G)	mg/L	1.55	5.0	APHA:-23rdEd.
6	Phenolic Compounds(C6H5OH)	mg/L	0.32	0.35	APHA:-5530:-C
7	Sulphide (S)	mg/L	0.1	0.5	APHA:-23rd Ed.
8	Total Kjeldahl Nitrogen (NH3)	mg/L	0.52	40	APHA:-23rd Ed.
9	Phosphate	mg/L	1.60	3.0	APHA:-23rd Ed.
10	Chromium Hexavalent (Cr^{+6})	mg/L	BDL	0.1	APHA:-23rd Ed.
11	Copper (Cu)	mg/L	BDL	1.0	APHA:-23rd Ed.
12	Lead (Pb)	mg/L	BDL	0.1	APHA:-23rd Ed.
13	Mercury (Hg)	mg/L	BDL	0.01	APHA:-23rd Ed.
14	Zinc (Zn)	mg/L	BDL	5.0	APHA:-23rd Ed.
15	Nickel (Ni)	mg/L	BDL	1.0	APHA:-23rd Ed.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-070425-18	07/04/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	14/03/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	17/03/2025 To 07/04/2025

Sr.No.	Parameter	Unit	Result	Permissible Limits	Protocol
16	Ammonia (N)	mg/L	7.42	15.0	APHA:-23rd Ed.
17	Cyanide (CN)	mg/L	BDL	0.20	APHA:-23rd Ed.
18	Total Chromium	mg/L	BDL	2.0	APHA:-23rd Ed.
19	Vanadium (V)	mg/L	BDL	0.2	APHA:-23rd Ed.
20	Benzene	mg/L	BDL	0.1	USEPA:-8260:-C
21	Benzo(a)-Pyreen	mg/L	BDL	0.2	USEPA:-8260:-C

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-070425-19	07/04/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	14/03/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (ETP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	17/03/2025 To 07/04/2025

Sr. No.	Parameters	Unit	Test Result	Protocol
1	Bioassay Toxic Test	%	91% Survival of fish after 96 hours in 100% effluent	IS:-6582

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Waste Water	WW-070425-20	07/04/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	14/03/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Waste Water (STP Outlet, Inside GGSR)**
Sample Quantity/Packing detail	:	2.0 lts
Weather Conditions	:	Normal
Analysis Duration	:	17/03/2025 To 07/04/2025

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
1	pH	-	7.26	6.5 to 9.0	APHA:-23rd Ed.
2	Temperature	°C	27.4	-	APHA:-23rd Ed.
3	TSS	mg/l	6.2	≤10mg/l	APHA:-23rd Ed.
4	COD	mg/l	23.1	≤50mg/l	APHA:-23rd Ed.
5	BOD	mg/l	6.8	≤10mg/l	IS:-3025 (P:-44)
6	O & G	mg/l	BDL	≤5mg/l	APHA:-23rd Ed.
7	Ammonical Nitrogen as N*	mg/l	7.50	≤5mg/l	APHA:-23rd Ed.
8	PO4-P*	mg/l	0.39	≤2mg/l	APHA:-23rd Ed.
9	N-total*	mg/l	5.12	≤10mg/l	APHA:-23rd Ed.

End of Report

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ALKOM SYNERGY PVT LTD

NABL Accredited (Certificate No. TC-9580), ISO 9001, 14001, 45001, and OHSAS 18001 Certified Laboratory
MOEF & CC (Ministry of Environment Forests & Climate Change) Recognized Laboratory

TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-041124-43	04/11/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 23/10/2024
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0lts
Weather Conditions : Normal
Analysis Duration : 24/10/2024 To 04/11/2024

Parameter	pH	Odour	Color	Taste	Temp.	Turbidity	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO3)	Chlorides	Fluorides
Location											
GW1	7.26	Agreeable	<5	Agreeable	23.4	<1	294	242	218	143.1	0.26
GW2	7.31	Agreeable	<5	Agreeable	22.9	<1	236	236	173	163.4	0.33
GW3	7.29	Agreeable	<5	Agreeable	23.1	<1	269	205	219	139.1	0.37
GW4	7.42	Agreeable	<5	Agreeable	22.8	<1	241	273	197	183.9	0.29
GW5	7.28	Agreeable	<5	Agreeable	22.5	<1	297	197	245	242.7	0.28
GW6	7.33	Agreeable	<5	Agreeable	23.6	<1	253	183	197	208.1	0.31
GW7	7.30	Agreeable	<5	Agreeable	23.1	<1	237	191	183	193.5	0.34
GW8	7.27	Agreeable	<5	Agreeable	24.5	<1	271	209	242	189.3	0.32
GW9	7.31	Agreeable	<5	Agreeable	22.9	<1	245	186	273	209.7	0.29
GW10	7.36	Agreeable	<5	Agreeable	22.3	<1	361	241	234	199.5	0.27
GW11	7.28	Agreeable	<5	Agreeable	23.7	<1	304	199	205	181.7	0.30
Desirable	6.5-8.5	Agreeable	5	Agreeable	-	1.0	500	200	200	250	1.0
Permissibe	6.5-8.5	Agreeable	15	Agreeable	-	5.0	2000	600	600	1000	1.5
Protocol	**IS:-3025 (P-11)**	**IS:-3025 (P:-5)**	**IS:-3025 (P:-4)**	**IS:-3025 (P:-7)**	**IS:-3025 (P:-9)**	**IS:-3025 (P:-10)**	**IS:-3025(P-16)**	**IS:-3025 (P:-23)**	**IS:-3025 (P:-21)**	**IS:-3025 (P:-32)**	**IS:-3025 (P:-60)**

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TEST REPORT

Parameter	Calcium as Ca	Magnesium as Mg	Sulphate	Nitrates	Phenolic Compounds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	20.24	18.61	65.2	19.5	BDL	0.19	BDL	BDL	BDL	BDL	BDL
GW2	22.92	26.33	71.9	16.3	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW3	25.24	18.52	63.7	20.7	BDL	0.25	BDL	BDL	BDL	BDL	BDL
GW4	23.91	24.67	68.3	19.4	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW5	19.54	21.32	72.9	17.2	BDL	0.22	BDL	BDL	BDL	BDL	BDL
GW6	26.21	24.67	70.4	20.4	BDL	0.25	BDL	BDL	BDL	BDL	BDL
GW7	20.46	23.92	69.1	22.6	BDL	0.16	BDL	BDL	BDL	BDL	BDL
GW8	18.57	25.43	72.8	16.3	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW9	21.93	19.57	75.5	14.8	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW10	24.67	21.76	71.2	16.5	BDL	0.23	BDL	BDL	BDL	BDL	BDL
GW11	27.58	25.22	68.7	15.3	BDL	0.20	BDL	BDL	BDL	BDL	BDL
Desirable	75	30	200	45	0.001	0.3	0.001	5	0.003	0.05	0.01
Permissible	200	100	400	No Relaxation	0.002	No Relaxation	No Relaxation	15	No Relaxation	No Relaxation	0.05
Protocol	IS: 3025 (P-40)	IS: 3025 (P-46)	IS:3025 (P-24)	IS: 3025 (P-34)	IS:3025 (P-43)	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.

End of Report

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TEST REPORT

Parameter	Lead (as Pb)	Boron (as B)	Selenium (as Se*)	FRC	Polycyclic Aromatic Hydrocarbons (PAH*)	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	0.32	BDL	BDL	BDL	BDL	BDL	Absent
GW4	BDL	0.25	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.36	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.18	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.27	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.23	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	0.21	BDL	BDL	BDL	BDL	BDL	Absent
Desirable	0.01	0.5	0.01	0.2	0.0001	0.2	0.03	Absent
Permissible	No Relaxation	1.0	No	1.0	No	1.0	0.2	Absent
Protocol	APHA:-23rd Ed.	IS:-3025 (P:-57)	APHA:-23rd Ed.	APHA:-23rd Ed.	APHA:-23rd Ed.	IS:-3025 (P:-68)	APHA:-23rd Ed.	IS:-15185

Remarks: Test parameters coming in under limit, Prescribe limits are given by MoEF/Central Pollution Control Board.

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-041124-44	04/11/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 23/10/2024
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 24/10/2024 To 04/11/2024

Parameters		Cyanide (as CN*)	Mineral Oil*
GW1		BDL	BDL
GW2		BDL	BDL
GW3		BDL	BDL
GW4		BDL	BDL
GW5		BDL	BDL
GW6		BDL	BDL
GW7		BDL	BDL
GW8		BDL	BDL
GW9		BDL	BDL
GW10		BDL	BDL
GW11		BDL	BDL
IS 10500	Desirable	0.05	0.5
	Permissible	No	No
Protocol		**IS:3025 (P-27)**	**APHA 23rd Ed.**

Remark:
GW1: Near Storm Water Pond-South East Side,GW2: Near Storm Water Pond – North East Side, GW3:Near Ecological Pond West Side, GW4: Near Ecological Pond South East SideGW5: Near Solar Pond South East Side- East Side of Water Block Area, GW6: Near Solar Pond South East Side- North East Side of Water Block Area,GW7: Near RO/DM Plant East Side Area, GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side,GW11:Near ETP South Side.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-091224-17	09/12/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 26/11/2024
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0lts
Weather Conditions : Normal
Analysis Duration : 27/11/2024 To 02/12/2024

Parameter	pH	Odour	Color	Taste	Temp.	Turbidity	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO3)	Chlorides	Fluorides
Location											
GW1	7.35	Agreeable	<5	Agreeable	22.1	<1	251	204	197	132.5	0.31
GW2	7.39	Agreeable	<5	Agreeable	23.5	<1	3.16	231	212	193.7	0.25
GW3	7.23	Agreeable	<5	Agreeable	24.7	<1	289	215	181	165.1	0.34
GW4	7.37	Agreeable	<5	Agreeable	22.2	<1	342	247	234	179.5	0.39
GW5	7.23	Agreeable	<5	Agreeable	23.4	<1	316	205	218	205.1	0.33
GW6	7.30	Agreeable	<5	Agreeable	24.6	<1	297	193	167	198.7	0.28
GW7	7.39	Agreeable	<5	Agreeable	22.9	<1	248	210	181	163.4	0.30
GW8	7.22	Agreeable	<5	Agreeable	23.1	<1	281	243	267	205.7	0.34
GW9	7.37	Agreeable	<5	Agreeable	22.5	<1	354	198	282	198.1	0.36
GW10	7.25	Agreeable	<5	Agreeable	24.2	<1	312	241	219	173.5	0.27
GW11	7.29	Agreeable	<5	Agreeable	23.7	<1	306	222	191	162.7	0.31
Desirable	6.5-8.5	Agreeable	5	Agreeable	-	1.0	500	200	200	250	1.0
Permissibe	6.5-8.5	Agreeable	15	Agreeable	-	5.0	2000	600	600	1000	1.5
Protocol	**IS:-3025 (P-11)**	**IS:-3025 (P:-5)**	**IS:-3025 (P:-4)**	**IS:-3025 (P:-7)**	**IS:-3025 (P:-9)**	**IS:-3025 (P:-10)**	**IS:-3025(P-16)**	**IS:-3025 (P:-23)**	**IS:-3025 (P:-21)**	**IS:-3025 (P:-32)**	**IS:-3025 (P:-60)**

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TEST REPORT

Parameter	Calcium as Ca	Magnesium as Mg	Sulphate	Nitrates	Phenolic Compounds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	23.16	20.14	62.1	20.5	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW2	19.84	24.18	69.4	18.2	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW3	24.68	21.37	66.9	22.7	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW4	22.12	18.91	71.5	21.1	BDL	0.27	BDL	BDL	BDL	BDL	BDL
GW5	25.64	22.16	70.9	19.7	BDL	0.23	BDL	BDL	BDL	BDL	BDL
GW6	18.32	20.21	66.2	23.1	BDL	0.20	BDL	BDL	BDL	BDL	BDL
GW7	23.48	25.22	73.4	20.7	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW8	26.54	21.46	68.1	22.4	BDL	0.23	BDL	BDL	BDL	BDL	BDL
GW9	22.46	20.18	70.9	19.2	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW10	20.22	19.76	66.5	17.7	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW11	22.16	20.14	71.2	20.1	BDL	0.24	BDL	BDL	BDL	BDL	BDL
Desirable	**75**	**30**	**200**	**45**	**0.001**	**0.3**	**0.001**	**5**	**0.003**	**0.05**	**0.01**
Permissible	**200**	**100**	**400**	**No Relaxation**	**0.002**	**No Relaxation**	**No Relaxation**	**15**	**No Relaxation**	**No Relaxation**	**0.05**
Protocol	**IS: 3025 (P-40)**	**IS: 3025 (P-46)**	**IS:3025 (P-24)**	**IS: 3025 (P-34)**	**IS:3025 (P-43)**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**

End of Report

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ALKOM SYNERGY PVT. LTD. NOIDA

ALKOM SYNERGY PVT LTD

Laboratory:- C-212, 2nd & 3rd Floor,
Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Parameter	Lead (as Pb)	Boron (as B)	Selenium (as Se*)	FRC	Polycyclic Aromatic Hydrocarbons (PAH*)	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.21	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.18	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	0.25	BDL	BDL	BDL	BDL	BDL	Absent
GW4	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.22	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.19	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.27	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.24	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	0.21	BDL	BDL	BDL	BDL	BDL	Absent
Desirable	0.01	0.5	0.01	0.2	0.0001	0.2	0.03	Absent
Permissible	No Relaxation	1.0	No	1.0	No	1.0	0.2	Absent
Protocol	APHA:-23rd Ed.	IS:-3025 (P:-57)	APHA:-23rd Ed.	APHA:-23rd Ed.	APHA:-23rd Ed.	IS:-3025 (P:-68)	APHA:-23rd Ed.	IS:-15185

Remarks: Test parameters coming in under limit, Prescribe limits are given by MoEF/Central Pollution Control Board.

Notes:

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2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-091224-18	09/12/2024

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 26/11/2024
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 27/11/2024 To 02/12/2024

Parameters		Cyanide (as CN*)	Mineral Oil*
GW1		BDL	BDL
GW2		BDL	BDL
GW3		BDL	BDL
GW4		BDL	BDL
GW5		BDL	BDL
GW6		BDL	BDL
GW7		BDL	BDL
GW8		BDL	BDL
GW9		BDL	BDL
GW10		BDL	BDL
GW11		BDL	BDL
IS 10500	Desirable	0.05	0.5
	Permissible	No	No
Protocol		**IS:3025 (P-27)**	**APHA 23rd Ed.**

Remark:
GW1: Near Storm Water Pond-South East Side,GW2: Near Storm Water Pond – North East Side, GW3:Near Ecological Pond West Side, GW4: Near Ecological Pond South East SideGW5: Near Solar Pond South East Side- East Side of Water Block Area, GW6: Near Solar Pond South East Side- North East Side of Water Block Area,GW7: Near RO/DM Plant East Side Area, GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side GW11: Near ETP South Side

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MOEF & CC (Ministry of Environment Forests & Climate Change) Recognized Laboratory

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-060125-43	06/01/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 11/12/2024
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0lts
Weather Conditions : Normal
Analysis Duration : 13/12/2024 To 06/01/2025

Parameter	pH	Odour	Color	Taste	Temp.	Turbidity	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO3)	Chlorides	Fluorides
Location											
GW1	7.36	Agreeable	<5	Agreeable	21.6	<1	326	263	206	136.2	0.29
GW2	7.24	Agreeable	<5	Agreeable	22.8	<1	298	212	162	173.9	0.31
GW3	7.39	Agreeable	<5	Agreeable	20.5	<1	312	258	191	142.5	0.36
GW4	7.27	Agreeable	<5	Agreeable	23.4	<1	326	261	185	168.2	0.28
GW5	7.14	Agreeable	<5	Agreeable	22.8	<1	291	189	232	216.7	0.32
GW6	7.26	Agreeable	<5	Agreeable	21.9	<1	262	206	180	199.1	0.30
GW7	7.31	Agreeable	<5	Agreeable	23.5	<1	290	176	162	234.8	0.26
GW8	7.35	Agreeable	<5	Agreeable	21.8	<1	324	231	206	213.1	0.31
GW9	7.26	Agreeable	<5	Agreeable	22.1	<1	305	247	198	183.4	0.33
GW10	7.24	Agreeable	<5	Agreeable	23.2	<1	297	205	213	201.6	0.29
GW11	7.32	Agreeable	<5	Agreeable	23.9	<1	312	181	229	234.1	0.27
Desirable	6.5-8.8	Agreeable	5	Agreeable	-	1.0	500	200	200	250	1.0
Permissibe	6.5-8.5	Agreeable	15	Agreeable	-	5.0	2000	600	600	1000	1.5
Protocol	**IS:-3025 (P-11)**	**IS:-3025 (P:-5)**	**IS:-3025 (P:-4)**	**IS:-3025 (P:-7)**	**IS:-3025 (P:-9)**	**IS:-3025 (P:-10)**	**IS:-3025(P-16)**	**IS:-3025 (P:-23)**	**IS:-3025 (P:-21)**	**IS:-3025 (P:-32)**	**IS:-3025 (P:-60)**

Laboratory:- C-212, 2nd & 3rd Floor, Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Parameter	Calcium as Ca	Magnesium as Mg	Sulphate	Nitrates	Phenolic Compounds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	19.26	21.12	62.8	21.6	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW2	23.82	25.24	72.5	18.2	BDL	0.25	BDL	BDL	BDL	BDL	BDL
GW3	24.16	20.86	65.1	22.9	BDL	0.19	BDL	BDL	BDL	BDL	BDL
GW4	18.82	22.62	70.8	17.5	BDL	0.23	BDL	BDL	BDL	BDL	BDL
GW5	22.18	19.80	73.4	21.8	BDL	0.20	BDL	BDL	BDL	BDL	BDL
GW6	23.42	26.28	68.2	19.1	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW7	18.26	21.40	75.5	15.7	BDL	0.17	BDL	BDL	BDL	BDL	BDL
GW8	20.84	24.26	70.1	18.2	BDL	0.13	BDL	BDL	BDL	BDL	BDL
GW9	22.24	20.32	72.6	16.6	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW10	21.86	23.43	69.1	19.1	BDL	0.24	BDL	BDL	BDL	BDL	BDL
GW11	25.32	22.84	73.8	18.4	BDL	0.22	BDL	BDL	BDL	BDL	BDL
Desirable	**75**	**30**	**200**	**45**	**0.001**	**0.3**	**0.001**	**5**	**0.003**	**0.05**	**0.01**
Permissible	**200**	**100**	**400**	**No Relaxation**	**0.002**	**No Relaxation**	**No Relaxation**	**15**	**No Relaxation**	**No Relaxation**	**0.05**
Protocol	**IS: 3025 (P-40)**	**IS: 3025 (P-46)**	**IS:3025 (P-24)**	**IS: 3025 (P-34)**	**IS:3025 (P-43)**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**	**APHA 23rd Ed.**

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TEST REPORT

Parameter	Lead (as Pb)	Boron (as B)	Selenium (as Se*)	FRC	Polycyclic Aromatic Hydrocarbons (PAH*)	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.32	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.36	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW4	BDL	0.24	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.23	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.28	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.22	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.27	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	0.20	BDL	BDL	BDL	BDL	BDL	Absent
Desirable	**0.01**	**0.5**	**0.01**	**0.2**	**0.0001**	**0.2**	**0.03**	**Absent**
Permissible	**No Relaxation**	**1.0**	**No**	**1.0**	**No**	**1.0**	**0.2**	**Absent**
Protocol	**APHA:-23rd Ed.**	**IS:-3025 (P:-57)**	**APHA:-23rd Ed.**	**APHA:-23rd Ed.**	**APHA:-23rd Ed.**	**IS:-3025 (P:-68)**	**APHA:-23rd Ed.**	**IS:-15185**

Remarks: Test parameters coming in under limit, Prescribe limits are given by MoEF/Central Pollution Control Board.

Notes:

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5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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Laboratory:- C-212, 2nd & 3rd Floor, Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-060125-44	06/01/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 11/12/2024
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 13/12/2024 To 06/01/2025

Parameters		Cyanide (as CN*)	Mineral Oil*
GW1		BDL	BDL
GW2		BDL	BDL
GW3		BDL	BDL
GW4		BDL	BDL
GW5		BDL	BDL
GW6		BDL	BDL
GW7		BDL	BDL
GW8		BDL	BDL
GW9		BDL	BDL
GW10		BDL	BDL
GW11		BDL	BDL
IS 10500	Desirable	0.05	0.5
	Permissible	No	No
Protocol		**IS:3025 (P-27)**	**APHA 23rd Ed.**

Remark:
GW1: Near Storm Water Pond-South East Side,GW2: Near Storm Water Pond – North East Side, GW3:Near Ecological Pond West Side, GW4: Near Ecological Pond South East SideGW5: Near Solar Pond South East Side- East Side of Water Block Area, GW6: Near Solar Pond South East Side- North East Side of Water Block Area,GW7: Near RO/DM Plant East Side Area, GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side GW11: Near Etp South Side

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ALKOM SYNERGY PVT LTD

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Laboratory:- C-212, 2nd & 3rd Floor,
Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-050225-15	05/02/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 24/01/2025
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0lts
Weather Conditions : Normal
Analysis Duration : 25/01/2025 To 05/02/2025

Parameter	pH	Odour	Color	Taste	Temp.	Turbidity	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO3)	Chlorides	Fluorides
Location											
GW1	7.31	Agreeable	<5	Agreeable	22.8	<1	291	213	187	124.1	0.32
GW2	7.26	Agreeable	<5	Agreeable	23.4	<1	354	196	142	163.7	0.29
GW3	7.36	Agreeable	<5	Agreeable	22.6	<1	328	205	231	150.3	0.25
GW4	7.32	Agreeable	<5	Agreeable	23.1	<1	361	197	165	193.7	0.31
GW5	7.30	Agreeable	<5	Agreeable	22.9	<1	298	234	173	215.1	0.34
GW6	7.34	Agreeable	<5	Agreeable	23.5	<1	367	209	245	206.7	0.36
GW7	7.29	Agreeable	<5	Agreeable	24.1	<1	312	195	163	196.4	0.30
GW8	7.26	Agreeable	<5	Agreeable	22.8	<1	329	216	150	205.1	0.25
GW9	7.32	Agreeable	<5	Agreeable	23.0	<1	293	185	169	213.4	0.29
GW10	7.28	Agreeable	<5	Agreeable	24.6	<1	364	243	204	196.7	0.33
GW11	7.39	Agreeable	<5	Agreeable	22.1	<1	305	198	162	201.2	0.25
Desirable	6.5-8.8	Agreeable	5	Agreeable	-	1.0	500	200	200	250	1.0
Permissibe	6.5-8.5	Agreeable	15	Agreeable	-	5.0	2000	600	600	1000	1.5
Protocol	**IS:-3025 (P-11)**	**IS:-3025 (P:-5)**	**IS:-3025 (P:-4)**	**IS:-3025 (P:-7)**	**IS:-3025 (P:-9)**	**IS:-3025 (P:-10)**	**IS:-3025(P-16)**	**IS:-3025 (P:-23)**	**IS:-3025 (P:-21)**	**IS:-3025 (P:-32)**	**IS:-3025 (P:-60)**

ALKOM SYNERGY PVT LTD

TC-9580

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Parameter	Calcium as Ca	Magnesium as Mg	Sulphate	Nitrates	Phenolic Compounds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	23.42	23.24	60.5	22.5	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW2	18.68	21.12	73.1	23.1	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW3	21.46	19.28	64.9	26.9	BDL	0.23	BDL	BDL	BDL	BDL	BDL
GW4	23.84	26.12	72.1	24.1	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW5	20.22	18.68	62.4	19.8	BDL	0.20	BDL	BDL	BDL	BDL	BDL
GW6	23.68	23.12	71.5	16.5	BDL	0.19	BDL	BDL	BDL	BDL	BDL
GW7	21.12	21.48	68.7	19.8	BDL	0.24	BDL	BDL	BDL	BDL	BDL
GW8	20.18	22.66	73.1	23.4	BDL	0.16	BDL	BDL	BDL	BDL	BDL
GW9	23.42	21.16	69.8	18.6	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW10	21.64	23.18	72.6	21.1	BDL	0.25	BDL	BDL	BDL	BDL	BDL
GW11	19.86	22.12	70.1	18.4	BDL	0.18	BDL	BDL	BDL	BDL	BDL
Desirable	75	30	200	45	0.001	0.3	0.001	5	0.003	0.05	0.01
Permissible	200	100	400	No Relaxation	0.002	No Relaxation	No Relaxation	15	No Relaxation	No Relaxation	0.05
Protocol	IS: 3025 (P-40)	IS: 3025 (P-46)	IS:3025 (P-24)	IS: 3025 (P-34)	IS:3025 (P-43)	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.

End of Report

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Parameter	Lead (as Pb)	Boron (as B)	Selenium (as Se*)	FRC	Polycyclic Aromatic Hydrocarbons (PAH*)	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.31	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	0.33	BDL	BDL	BDL	BDL	BDL	Absent
GW4	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.25	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.31	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.24	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.20	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.27	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	0.32	BDL	BDL	BDL	BDL	BDL	Absent
Desirable	0.01	0.5	0.01	0.2	0.0001	0.2	0.03	Absent
Permissible	No Relaxation	1.0	No	1.0	No	1.0	0.2	Absent
Protocol	APHA:-23rd Ed.	IS:-3025 (P:-57)	APHA:-23rd Ed.	APHA:-23rd Ed.	APHA:-23rd Ed.	IS:-3025 (P:-68)	APHA:-23rd Ed.	IS:-15185

Remarks: Test parameters coming in under limit, Prescribe limits are given by MoEF/Central Pollution Control Board.

Notes:-

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4. This test report will not be used for any publicity/legal purpose.
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Laboratory:- C-212, 2nd & 3rd Floor,
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Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TC-9580

TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-050225-16	05/02/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 24/01/2025
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 25/01/2025 To 05/02/2025

Parameters		Cyanide (as CN*)	Mineral Oil*
GW1		BDL	BDL
GW2		BDL	BDL
GW3		BDL	BDL
GW4		BDL	BDL
GW5		BDL	BDL
GW6		BDL	BDL
GW7		BDL	BDL
GW8		BDL	BDL
GW9		BDL	BDL
GW10		BDL	BDL
GW11		BDL	BDL
IS:-10500	Desirable	0.05	0.5
	Permissible	No	No
Protocol		**IS:3025 (P-27)**	**APHA 23rd Ed.**

Remark:
GW1: Near Storm Water Pond-South East Side,GW2: Near Storm Water Pond – North East Side, GW3:Near Ecological Pond West Side, GW4: Near Ecological Pond South East SideGW5: Near Solar Pond South East Side- East Side of Water Block Area, GW6: Near Solar Pond South East Side- North East Side of Water Block Area,GW7: Near RO/DM Plant East Side Area, GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side GW11: Near Etp South Side

*****End of Report*****

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AUTHORIZED SIGNATORY

ALKOM SYNERGY PVT. LTD. NOIDA

ALKOM SYNERGY PVT LTD

TC-9580

Laboratory:- C-212, 2nd & 3rd Floor,
Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-060325-15	06/03/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On	:	19/02/2025
Sample Collected By	:	Laboratory
Sample Description	:	**Ground Water**
Sample Quantity/Packing detail	:	2.0lts
Weather Conditions	:	Normal
Analysis Duration	:	21/02/2025 To 06/03/2025

Parameter	pH	Odour	Color	Taste	Temp.	Turbidity	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO3)	Chlorides	Fluorides
Location											
GW1	7.26	Agreeable	<5	Agreeable	24.1	<1	326	185	156	120.4	0.30
GW2	7.34	Agreeable	<5	Agreeable	26.3	<1	391	232	175	152.9	0.25
GW3	7.29	Agreeable	<5	Agreeable	22.5	<1	297	189	163	141.1	0.23
GW4	7.31	Agreeable	<5	Agreeable	24.7	<1	325	176	148	182.2	0.31
GW5	7.33	Agreeable	<5	Agreeable	25.2	<1	341	156	155	173.4	0.36
GW6	7.25	Agreeable	<5	Agreeable	24.6	<1	286	193	167	168.3	0.27
GW7	7.28	Agreeable	<5	Agreeable	25.9	<1	302	174	183	192.2	0.29
GW8	7.30	Agreeable	<5	Agreeable	24.7	<1	348	168	170	172.4	0.22
GW9	7.37	Agreeable	<5	Agreeable	24.0	<1	313	184	144	165.4	0.33
GW10	7.34	Agreeable	<5	Agreeable	25.3	<1	378	158	136	156.1	0.26
GW11	7.28	Agreeable	<5	Agreeable	24.5	<1	329	176	154	158.5	0.21
Desirable	6.5-8.5	Agreeable	15	Agreeable	-	1.0	500	200	200	250	1.0
Permissibe	6.5-8.5	Agreeable	15	Agreeable	-	5.0	2000	600	600	1000	1.5
Protocol	**IS:-3025 (P-11)**	**IS:-3025 (P:-5)**	**IS:-3025 (P:-4)**	**IS:-3025 (P:-7)**	**IS:-3025 (P:-9)**	**IS:-3025 (P:-10)**	**IS:-3025(P-16)**	**IS:-3025 (P:-23)**	**IS:-3025 (P:-21)**	**IS:-3025 (P:-32)**	**IS:-3025 (P:-60)**

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TEST REPORT

Parameter	Calcium as Ca	Magnesium as Mg	Sulphate	Nitrates	Phenolic Compounds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	21.42	20.16	62.4	23.8	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW2	19.76	22.82	76.9	25.1	BDL	0.20	BDL	BDL	BDL	BDL	BDL
GW3	20.54	21.68	62.1	22.9	BDL	0.24	BDL	BDL	BDL	BDL	BDL
GW4	22.82	20.56	66.9	19.5	BDL	0.22	BDL	BDL	BDL	BDL	BDL
GW5	18.68	19.82	73.1	18.6	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW6	21.54	20.76	70.9	21.1	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW7	20.16	19.60	69.5	17.9	BDL	0.26	BDL	BDL	BDL	BDL	BDL
GW8	23.42	20.64	72.6	22.2	BDL	0.19	BDL	BDL	BDL	BDL	BDL
GW9	22.56	18.86	71.3	19.8	BDL	0.25	BDL	BDL	BDL	BDL	BDL
GW10	20.14	22.62	68.9	20.4	BDL	0.19	BDL	BDL	BDL	BDL	BDL
GW11	21.78	19.86	73.6	19.0	BDL	0.21	BDL	BDL	BDL	BDL	BDL
Desirable	75	30	200	45	0.001	0.3	0.001	5	0.003	0.05	0.01
Permissible	200	100	400	No Relaxation	0.002	No Relaxation	No Relaxation	15	No Relaxation	No Relaxation	0.05
Protocol	IS: 3025 (P-40)	IS: 3025 (P-46)	IS:3025 (P-24)	IS: 3025 (P-34)	IS:3025 (P-43)	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.

End of Report

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Email: info@alkom.in, www.alkomsynergy.com

TC-9580

TEST REPORT

Parameter	Lead (as Pb)	Boron (as B)	Selenium (as Se*)	FRC	Polycyclic Aromatic Hydrocarbons (PAH*)	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	0.32	BDL	BDL	BDL	BDL	BDL	Absent
GW4	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.34	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.22	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.24	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.28	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	0.31	BDL	BDL	BDL	BDL	BDL	Absent
Desirable	0.01	0.5	0.01	0.2	0.0001	0.2	0.03	Absent
Permissible	No Relaxation	1.0	No	1.0	No	1.0	0.2	Absent
Protocol	APHA:-23rd Ed.	IS:-3025 (P:-57)	APHA:-23rd Ed.	APHA:-23rd Ed.	APHA:-23rd Ed.	IS:-3025 (P:-68)	APHA:-23rd Ed.	IS:-15185

Remarks: Test parameters coming in under limit, Prescribe limits are given by MoEF/Central Pollution Control Board.

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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ALKOM SYNERGY PVT LTD

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Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-060325-16	06/03/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 19/02/2025
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 21/02/2025 To 06/03/2025

Parameters		Cyanide (as CN*)	Mineral Oil*
GW1		BDL	BDL
GW2		BDL	BDL
GW3		BDL	BDL
GW4		BDL	BDL
GW5		BDL	BDL
GW6		BDL	BDL
GW7		BDL	BDL
GW8		BDL	BDL
GW9		BDL	BDL
GW10		BDL	BDL
GW11		BDL	BDL
IS 10500	Desirable	0.05	0.5
	Permissible	No	No
Protocol		**IS:3025 (P-27)**	**APHA 23rd Ed.**

Remark:
GW1: Near Storm Water Pond-South East Side,GW2: Near Storm Water Pond – North East Side, GW3:Near Ecological Pond West Side, GW4: Near Ecological Pond South East SideGW5: Near Solar Pond South East Side- East Side of Water Block Area, GW6: Near Solar Pond South East Side- North East Side of Water Block Area,GW7: Near RO/DM Plant East Side Area, GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side GW11: Near Etp South Side

End of Report

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TEST REPORT

Test Report of	Report Code	Date of Issue
Ground Water	GW-070425-15	07/04/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 14/03/2025
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0lts
Weather Conditions : Normal
Analysis Duration : 17/03/2025 To 07/04/2025

Parameter	pH	Odour	Color	Taste	Temp.	Turbidity	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO3)	Chlorides	Fluorides
Location											
GW1	7.32	Agreeable	<5	Agreeable	28.5	<1	298	182	143	136.1	0.26
GW2	7.28	Agreeable	<5	Agreeable	29.1	<1	320	191	195	143.5	0.32
GW3	7.31	Agreeable	<5	Agreeable	25.7	<1	356	183	173	138.1	0.29
GW4	7.35	Agreeable	<5	Agreeable	27.3	<1	294	179	138	176.4	0.25
GW5	7.30	Agreeable	<5	Agreeable	28.1	<1	312	145	191	162.9	0.33
GW6	7.29	Agreeable	<5	Agreeable	27.6	<1	290	171	185	154.3	0.29
GW7	7.31	Agreeable	<5	Agreeable	27.9	<1	336	156	163	180.4	0.31
GW8	7.33	Agreeable	<5	Agreeable	28.7	<1	322	173	186	166.1	0.27
GW9	7.35	Agreeable	<5	Agreeable	28.4	<1	381	190	172	184.9	0.30
GW10	7.28	Agreeable	<5	Agreeable	27.2	<1	337	162	169	162.5	0.29
GW11	7.24	Agreeable	<5	Agreeable	27.0	<1	364	179	142	173.2	0.34
Desirable	6.5-8.5	Agreeable	15	Agreeable	-	1.0	500	200	200	250	1.0
Permissibe	6.5-8.5	Agreeable	15	Agreeable	-	5.0	2000	600	600	1000	1.5
Protocol	**IS:-3025 (P-11)**	**IS:-3025 (P:-5)**	**IS:-3025 (P:-4)**	**IS:-3025 (P:-7)**	**IS:-3025 (P:-9)**	**IS:-3025 (P:-10)**	**IS:-3025(P-16)**	**IS:-3025 (P:-23)**	**IS:-3025 (P:-21)**	**IS:-3025 (P:-32)**	**IS:-3025 (P:-60)**

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Parameter	Calcium as Ca	Magnesium as Mg	Sulphate	Nitrates	Phenolic Compounds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	20.18	22.14	60.5	25.8	BDL	0.29	BDL	BDL	BDL	BDL	BDL
GW2	17.64	24.62	73.1	24.2	BDL	0.18	BDL	BDL	BDL	BDL	BDL
GW3	22.58	20.58	69.4	21.6	BDL	0.20	BDL	BDL	BDL	BDL	BDL
GW4	20.16	23.46	62.1	20.4	BDL	0.16	BDL	BDL	BDL	BDL	BDL
GW5	21.58	21.84	70.8	17.1	BDL	0.23	BDL	BDL	BDL	BDL	BDL
GW6	20.54	22.82	73.4	19.4	BDL	0.25	BDL	BDL	BDL	BDL	BDL
GW7	23.62	20.68	71.1	18.3	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW8	21.26	22.54	68.6	23.1	BDL	0.27	BDL	BDL	BDL	BDL	BDL
GW9	20.64	19.42	66.2	18.7	BDL	0.22	BDL	BDL	BDL	BDL	BDL
GW10	23.48	20.86	63.7	22.2	BDL	0.17	BDL	BDL	BDL	BDL	BDL
GW11	20.60	21.56	70.3	19.6	BDL	0.23	BDL	BDL	BDL	BDL	BDL
Desirable	75	30	200	45	0.001	0.3	0.001	5	0.003	0.05	0.01
Permissible	200	100	400	No Relaxation	0.002	No Relaxation	No Relaxation	15	No Relaxation	No Relaxation	0.05
Protocol	IS: 3025 (P-40)	IS: 3025 (P-46)	IS:3025 (P-24)	IS: 3025 (P-34)	IS:3025 (P-43)	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.	APHA 23rd Ed.

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Email: info@alkom.in, www.alkomsynergy.com

TEST REPORT

Parameter	Lead (as Pb)	Boron (as B)	Selenium (as Se*)	FRC	Polycyclic Aromatic Hydrocarbons (PAH*)	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.33	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW4	BDL	0.26	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.28	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.31	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.25	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.29	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.30	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.24	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	0.34	BDL	BDL	BDL	BDL	BDL	Absent
Desirable	0.01	0.5	0.01	0.2	0.0001	0.2	0.03	Absent
Permissible	No Relaxation	1.0	No	1.0	No	1.0	0.2	Absent
Protocol	APHA:-23rd Ed.	IS:-3025 (P:-57)	APHA:-23rd Ed.	APHA:-23rd Ed.	APHA:-23rd Ed.	IS:-3025 (P:-68)	APHA:-23rd Ed.	IS:-15185

Remarks: Test parameters coming in under limit, Prescribe limits are given by MoEF/Central Pollution Control Board.

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
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4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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*****End of Report*****

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ALKOM SYNERGY PVT LTD NOIDA

ALKOM SYNERGY PVT LTD

TEST REPORT

Laboratory:- C-212, 2nd & 3rd Floor,
Sector-10, Noida-201301, U.P.(INDIA)
Tel.: 0120-4320319 Mob.:+91-8882196187
Email: info@alkom.in, www.alkomsynergy.com

Test Report of	Report Code	Date of Issue
Ground Water	GW-070425-16	07/04/2025

Issued To:-M/s HPCL-Mittal Energy Limited, Village:-Phullokhari, Taluka:-Talwandi Saboo, District:-Bathinda (Punjab) India

SAMPLING & ANALYSIS DATA

Sample Collected On : 14/03/2025
Sample Collected By : Laboratory
Sample Description : **Ground Water**
Sample Quantity/Packing detail : 2.0 lts
Weather Conditions : Normal
Analysis Duration : 17/03/2025 To 07/04/2025

Parameters		Cyanide (as CN*)	Mineral Oil*
GW1		BDL	BDL
GW2		BDL	BDL
GW3		BDL	BDL
GW4		BDL	BDL
GW5		BDL	BDL
GW6		BDL	BDL
GW7		BDL	BDL
GW8		BDL	BDL
GW9		BDL	BDL
GW10		BDL	BDL
GW11		BDL	BDL
IS 10500	Desirable	0.05	0.5
	Permissible	No	No
Protocol		**IS:3025 (P-27)**	**APHA 23rd Ed.**

Remark:
GW1: Near Storm Water Pond-South East Side,GW2: Near Storm Water Pond – North East Side, GW3:Near Ecological Pond West Side, GW4: Near Ecological Pond South East SideGW5: Near Solar Pond South East Side- East Side of Water Block Area, GW6: Near Solar Pond South East Side- North East Side of Water Block Area,GW7: Near RO/DM Plant East Side Area, GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side GW11: Near Etp South Side

*****End of Report*****

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ANNEXURE-VII

Duration=1st October 24 to 31st March 25					
Station= ETP (Refinery)					
October					
SR.no	Parameter	Minimum	Maximum	Average	CPCB Std.
1	COD	62.73	69.36	64.95	125
2	BOD	6.55	7.87	7	15
3	TSS	4.55	5.87	5	20
4	PH	7.31	7.57	7.39	6-8.5
5	FLOW	246	349	304	N/A
November					
SR.no	Parameter	Minimum	Maximum	Average	CPCB Std.
1	COD	61.72	67.49	65	125
2	BOD	6.34	7.5	7	15
3	TSS	4.34	5.5	5	20
4	PH	7.27	7.5	7.39	6-8.5
5	FLOW	320	348	327	N/A
December					
SR.no	Parameter	Minimum	Maximum	Average	CPCB Std.
1	COD	61.89	68	65	125
2	BOD	6.38	7.6	7	15
3	TSS	4.38	5.6	5	20
4	PH	7.28	7.52	7.39	6-8.5
5	FLOW	313	337	320	N/A
January					
SR.no	Parameter	Minimum	Maximum	Average	CPCB Std.
1	COD	62	70	65	125
2	BOD	6.4	7.91	7	15
3	TSS	4.4	5.9	5	20
4	PH	7.28	7.57	7.4	6-8.5
5	FLOW	308	337	315	N/A
February					
SR.no	Parameter	Minimum	Maximum	Average	CPCB Std.
1	COD	62.32	66.64	64.50	125
2	BOD	5.13	6.86	6	15
3	TSS	4.12	5.86	5	20
4	PH	7.4	7.56	7.3	6-8.5
5	FLOW	309	333	316	N/A
March					
SR.no	Parameter	Minimum	Maximum	Average	CPCB Std.
1	COD	60.01	66.17	37.41	125
2	BOD	2.69	6.67	4.70	15
3	TSS	0.44	8.19	5.46	20
4	PH	6.8	7.81	7.35	6-8.5
5	FLOW	205	349	267	N/A

ANNEXURE-VIII

Annexure-VIII

Activities undertaken for improving socio-economic condition in the surrounding areas from Oct'24 to Mar'2025		
CSR Pillars	**Beneficiaries**	**Remarks**
Community Healthcare & Hygiene	25626	Medical camps; Promoting Sports among youth; Support of Fitness Equipments; Road Safety initiatives; Support of Mobile Toilets; Support to Drug de addiction Centre and Bal Bhawan; Road cleaning and Housekeeping; Personal Hygiene Awareness among Girls and Women; Anemia Screening and Awareness Session;
Livelihood and Sustainable Development	30132	Women Empowerment initiatives; Women Entrepreneurship initiatives; Animal Camp; livestock breed competition.
Total	**55758**	

Photographs for activities undertaken for improving socio-economic condition in the surrounding areas from Oct'24 to Mar'2025

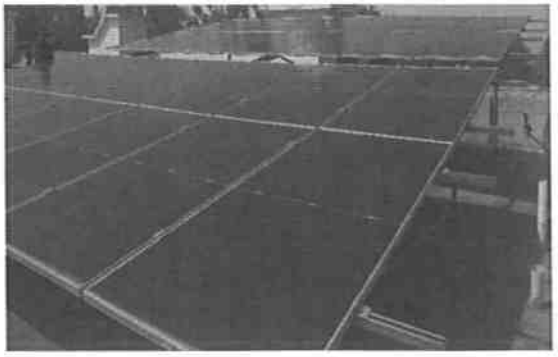
Livelihood and Sustainable Development (Animal health checkup camp)	Livelihood and Sustainable Development (Women Entrepreneurship initiatives)
	
Community Healthcare & Hygiene (Support of Fitness Equipments)	**Community Healthcare & Hygiene (Anemia Screening and Awareness Session)**
	
Livelihood and Sustainable Development (Livestock Breed Competition)	**Community Healthcare & Hygiene (Personal Hygiene Awareness Session)**
	

ANNEXURE-IX

Annexure-IX

Activities undertaken for community welfare including eco-developmental measures in the surrounding areas from Apr'2024' to Sep'24		
CSR Pillars	**Beneficiaries**	**Remarks**
Education Development	31678	Drinking Water arrangement in schools; Coaching for Underprivileged Students for higher studies in Engineering institutions; Library books for Govt. schools; Installed Rides & Swing (Play equipment); Sports and Drawing Competition for Govt. Schools; Bicycle for Girls Students; Bicycle for Girls Students; Infrastructure support to Education institutions (Supply Items); Scholarship & Other support to Meritorious students for 10th & 12th class students; Setup of Smart interactive Boards in Govt. Schools; Toilet Constructions in Schools; Infrastructure facility support to Jain College Raman; Support to Red Cross society for providing education to special abled children; Govt. School Development
Community infrastructure and Environment	12053	Community level rural development work; Tree Guards & Concrete Benches; Support to community Institutions
Total	**43731**	

Photographs for activities undertaken for community welfare including eco-developmental measures

Education Development (Bicycle for Girls Students)	Education Development (School Uniform & Stationery distribution)
	
Education Development (Scholarship to Meritorious Students)	**Education Development (Smart interactive Boards in Govt. Schools)**
	
Community infrastructure and Environment (Govt. School Development)	**Community infrastructure and Environment (Community level rural development work)**
	

ANNEXURE-X

PUNJAB POLLUTION CONTROL BOARD

Zonal Office, Power House Road, Street No. 12, Bathinda

Website:- www.ppcb.gov.in

Office Dispatch No : **OCMMS/CTO(Air)/2025/002240** | **Registered/Speed Post** | **Date:**

Industry Registration ID: *R12BTI44706* | **Application No :** *28045566*

To,

Sanket Thapar
Hpcl-mittal Energy Limited,guru Gobind Singh Refinery Project,village Phullokari,taluka Talwandi Saboo, District Bathinda.
Bathinda,Bathinda-151301

Subject: **Extension in the validity of consent to operate u/s 21 of Air (Prevention & Control of Pollution) Act, 1981 for discharge of emissions arising out of premises.**

1. Particulars of Consent to Operate under Air Act, 1981 granted to the industry

Consent to Operate Certificate No.	*CTOA/Renewal/BTI/2025/28045566*
Date of issue :	*21/03/2025*
Date of expiry :	*30/09/2025*
Certificate Type :	*Renewal*
Previous CTO No. & Validity :	*CTOA/Varied//BTI/2022/19563058 From:24/09/2022 To:31/03/2025*

2. Particulars of the Industry

Name & Designation of the Applicant	*Sanket Thapar, (Deputy General Manager)*
Address of Industrial premises	*Hpcl-mittal Energy Limited (guru Gobind Singh Refinery), Village Phullokari,taluka Talwandi Saboo,, Talwandi Sabo,Bathinda-151301*
Capital Investment of the Industry	*4245260.0 lakhs*
Category of Industry	*Red*
Type of Industry	*Oil Refinery*
Scale of the Industry	*Large*
Office District	*Bathinda*

In continuation to the previous 'consent to operate' granted to the industry under the provisions of Air Act, 1981 from the Invest Punjab, PBIP vide no. CTOA/Varied//BTI/2022/19563058 dt. 24.09.2022, which is valid upto 31.03.2025, the consent to operate under the said Act, is hereby further extended upto 30.09.2025, subject to the same conditions as mentioned in the original consent along-with following specific conditions that:-

1. The industrial shall comply with the conditions imposed in the Environmental Clearance issued to it under the EIA notification dated 14.09.2006 from time to time.
2. The industry being a bulk waste generator of solid waste, shall ensure that bio-degradable waste shall be processed, treated and disposed of through composting or bio-methanation within the premises.
3. The industry shall operate its ETP of refinery section as well as petro chemical section regularly and scientifically and shall ensure to achieve the effluent standards at all times.
4. The industry shall install/operate online continuous effluent & stack emission monitoring systems and shall ensure the connectivity of the same with the server of PPCB & CPCB as per the directions issued by CPCB, New Delhi and shall ensure regular maintenance/ operation of the same with temper proof mechanisms having facilities for online calibration.
5. The industry shall make necessary and adequate arrangements to hold back the effluent in case of failure of re-circulation system / effluent treatment plant and during no demand period.
6. The industry shall ensure that the activities of unit does not create any nuisance in the surrounding areas and no public complaints are received.
7. The industry shall install flare gas recovery system on its petrochemical flare system on the same lines as already done by it on another flare provided with the refinery unit by 31.12.2025 and shall submit the progress report in the matter to the Regional Office, Bathinda of the Board.
8. The industry shall install CCTV cameras showing the flare stacks of its refinery and petrochemical unit, which shall be connected with the server of the Board, within one month.
9. The industry shall ensure that only the treated effluent is discharged into the plantation area and the said plantation area shall be properly developed with proper access by regular removal of weeds / wild growth, plantation of new saplings in place of dead plants and proper irrigation network.

This letter be remain appended with the consent to operate granted to the industry under the Air Act, 1981 vide no. CTOA/Varied//BTI/2022/19563058 dt. 24.09.2022.

21/03/2025

(Ruby Sidhu)
Environmental Engineer
For & on behalf
of
(Punjab Pollution Control Board)

Endst. No.: **Dated:**

A copy of the above is forwarded to the following for information and necessary action please:

Environmental Engineer, Punjab Pollution Control Board, Regional Office, Bathinda.

21/03/2025

(Ruby Sidhu)
Environmental Engineer

For & on behalf

of

(Punjab Pollution Control Board)

PUNJAB POLLUTION CONTROL BOARD

Zonal Office, Power House Road, Street No. 12, Bathinda

Website:- www.ppcb.gov.in

Office Dispatch No : **Registered/Speed Post** **Date:**
OCMMS/CTO(Water)/2025/002238

Industry Registration ID: *R12BTI44706* **Application No :** *28052066*

To,

Sanket Thapar
Hpcl-mittal Energy Limited,guru Gobind Singh Refinery Project,village Phullokari,taluka Talwandi Saboo, District Bathinda.
Bathinda,Bathinda-151301

Subject: Extension in the validity of consent to operate an outlet u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974 for discharge of effluent.

1. Particulars of Consent to Operate under Water Act, 1974 granted to the industry

Consent to Operate Certificate No.	*CTOW/Renewal/BTI/2025/28052066*
Date of issue :	*21/03/2025*
Date of expiry :	*30/09/2025*
Certificate Type :	*Renewal*
Previous CTO No. & Validity :	*CTOW/Varied/BTI/2022/19705515 From:24/09/2022 To:31/03/2025*

2. Particulars of the Industry

Name & Designation of the Applicant	*Sanket Thapar, (Deputy General Manager)*
Address of Industrial premises	*Hpcl-mittal Energy Limited (guru Gobind Singh Refinery), Village Phullokari,taluka Talwandi Saboo,. Talwandi Sabo,Bathinda-151301*
Capital Investment of the Industry	*4245260.0 lakhs*
Category of Industry	*Red*
Type of Industry	*Oil Refinery*
Scale of the Industry	*Large*
Office District	*Bathinda*

In continuation to the previous 'consent to operate' granted to the industry under the provisions of Water Act, 1974 from the Invest Punjab, PBIP vide no. CTOW/Varied/BTI/2022/19705515 dt. 24.09.2022, which is valid upto 31.03.2025, the consent to operate under the said Act is hereby further extended upto 30.09.2025, subject to the same conditions as mentioned in the original consent along-with the following specific conditions that:-

1. The industrial shall comply with the conditions imposed in the Environmental Clearance issued to it under the EIA notification dated 14.09.2006 from time to time.
2. The industry being a bulk waste generator of solid waste, shall ensure that bio-degradable waste shall be processed, treated and disposed of through composting or bio-methanation within the premises.
3. The industry shall operate its ETP of refinery section as well as petro chemical section regularly and scientifically and shall ensure to achieve the effluent standards at all times.
4. The industry shall install/operate online continuous effluent & stack emission monitoring systems and shall ensure the connectivity of the same with the server of PPCB & CPCB as per the directions issued by CPCB, New Delhi and shall ensure regular maintenance/ operation of the same with temper proof mechanisms having facilities for online calibration.
5. The industry shall make necessary and adequate arrangements to hold back the effluent in case of failure of re-circulation system / effluent treatment plant and during no demand period.
6. The industry shall ensure that the activities of unit does not create any nuisance in the surrounding areas and no public complaints are received.
7. The industry shall install flare gas recovery system on its petrochemical flare system on the same lines as already done by it on another flare provided with the refinery unit by 31.12.2025 and shall submit the progress report in the matter to the Regional Office, Bathinda of the Board.
8. The industry shall install CCTV cameras showing the flare stacks of its refinery and petrochemical unit, which shall be connected with the server of the Board, within one month.
9. The industry shall ensure that only the treated effluent is discharged into the plantation area and the said plantation area shall be properly developed with proper access by regular removal of weeds / wild growth, plantation of new saplings in place of dead plants and proper irrigation network.

This letter be remain appended with the consent to operate granted to the industry under the Water Act, 1974 vide no. CTOW/Varied/ /BTI/2022/19705515 dt. 24.09.2022.

21/03/2025

(Ruby Sidhu)
Environmental Engineer
For & on behalf
of
(Punjab Pollution Control Board)

Endst. No.: **Dated:**

A copy of the above is forwarded to the following for information and necessary action please:

Environmental Engineer, Punjab Pollution Control Board, Regional Office, Bathinda.

21/03/2025

(Ruby Sidhu)
Environmental Engineer

For & on behalf

of

(Punjab Pollution Control Board)

ANNEXURE-XI

Annexure-XI

Corporate Environmental Responsibility (CER) plan for 8 years (from 2022-23 to 2029-30) of 8 villages

BS-VI Fuel Quality up-gradation project at Guru Gobind Singh Refinery by M/s HPCL-Mittal Energy Limited (HMEL) at Village Phulokhari, Talika Talwandi Sabo, District Bathinda (Punjab).

Sr. No.	Activities	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total Budget (in Crores)
1	De-silting of ponds	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.45
2	Repair of ponds & drains leading to ponds	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.5
3	Treatment facility for influent water to pond & utilization for irrigation purpose	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.2
4	Tree plantation in community /avenue area	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.9
Total		**0.28**	**0.28**	**0.25**	**0.25**	0.25	**0.25**	0.25	0.25	**2.05**

ANNEXURE-XII

Annexure-XII

The Tribune
BATHINDA | THURSDAY | 9 AUGUST 2018

HPCL-Mittal Energy Limited (HMEL)

(A JV between HPCL and MEI Pte. Ltd.)
Village Phullokari, Taluka - Talwandi Sabo
District - Bathinda - 151301, PUNJAB
Website : www.hmel.in

HMEL®

PUBLIC NOTICE

HPCL-Mittal Energy Limited hereby brings to the notice of the general public that Ministry of Environment, Forest and Climate Change (MOEF&CC), New Delhi has granted Environmental Clearance for Fuel Quality Upgradation Project at Guru Gobind Singh Refinery, Village - Phullokari, Taluka - Talwandi Sabo, District - Bathinda (Punjab) vide letter no J-11011/386/2016-IA-II(I) dated 7th August, 2018.

Copies of clearance letter are available with Punjab Pollution Control Board and may be seen on website of Ministry at http://moef.nic.in

Authorized Signatory
HPCL-Mittal Energy Limited

Punjabi Newspaper Ajit, dated 19th August, 2018

ਐਚ ਪੀ ਸੀ ਐਲ-ਮਿੱਤਲ ਐਨਰਜੀ ਲਿਮਟਿਡ (ਐਚ ਐਮ ਈ ਐਲ)

(ਐਚ ਪੀ ਸੀ ਐਲ ਅਤੇ ਐਮ ਈ ਆਈ ਪੀ ਟੀ ਈ ਲਿਮਟਿਡ ਦਰਮਿਆਨ ਇਕ ਜੇ ਵੀ)
ਪਿੰਡ ਫੁੱਲੋਕਾਰੀ, ਤਾਲੁਕਾ-ਤਲਵੰਡੀ ਸਾਬੋ
ਜ਼ਿਲ੍ਹਾ ਬਠਿੰਡਾ-151301, ਪੰਜਾਬ
ਵੈੱਬਸਾਈਟ : www.hmel.in

HMEL®

ਜਨਤਕ ਸੂਚਨਾ

ਐਚ ਪੀ ਸੀ ਐਲ-ਮਿੱਤਲ ਐਨਰਜੀ ਲਿਮਟਿਡ ਦੁਆਰਾ ਆਮ ਜਨਤਾ ਦੇ ਧਿਆਨ ਵਿਚ ਲਿਆਂਦਾ ਜਾਂਦਾ ਹੈ ਕਿ ਵਾਤਾਵਰਨ, ਜੰਗਲਾਤ ਅਤੇ ਜਲਵਾਯੂ ਤਬਦੀਲੀ ਮੰਤਰਾਲਾ (ਐਮ ਓ ਈ ਐਫ ਐਂਡ ਸੀ ਸੀ), ਨਵੀਂ ਦਿੱਲੀ ਨੇ ਪੱਤਰ ਨੰਬਰ : ਜੇ-11011/386/2016-I ਏ-II (I) ਮਿਤੀ 7 ਅਗਸਤ, 2018 ਦੁਆਰਾ ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਰੀਫਾਇਨਰੀ, ਪਿੰਡ ਫੁੱਲੋਕਾਰੀ, ਤਾਲੁਕਾ-ਤਲਵੰਡੀ ਸਾਬੋ, ਜ਼ਿਲ੍ਹਾ ਬਠਿੰਡਾ (ਪੰਜਾਬ) ਵਿਖੇ ਵਿਚੂਅਲ ਕੁਆਲਟੀ ਅਪਗ੍ਰੇਡੇਸ਼ਨ ਪ੍ਰਾਜੈਕਟ ਲਈ ਵਾਤਾਵਰਨਿਕ ਕਲੀਅਰੈਂਸ ਪ੍ਰਦਾਨ ਕੀਤੀ ਹੈ।

ਕਲੀਅਰੈਂਸ ਪੱਤਰ ਦੀਆਂ ਕਾਪੀਆਂ ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਰੋਕਥਾਮ ਬੋਰਡ ਕੋਲ ਉਪਲਬਧ ਹਨ ਅਤੇ ਮੰਤਰਾਲੇ ਦੀ ਵੈੱਬਸਾਈਟ http://moef.nic.in 'ਤੇ ਦੇਖੀਆਂ ਜਾ ਸਕਦੀਆਂ ਹਨ।

— ਅਧਿਕਾਰਤ ਸਿਗਨੇਟਰੀ
ਐਚ ਪੀ ਸੀ ਐਲ-ਮਿੱਤਲ ਐਨਰਜੀ ਲਿਮਟਿਡ