

25/00/2020 EMV

Date: 19th June, 2020 Ref: HMEL-TS-40-ENV 744

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To,

The Director,

Ministry of Environment, Forest & Climate Change,

Northern Regional Office,

Bays No. 24-25, Sector 31-A,

Dakshin Marg,

Chandigarh - 160 030.

26/06/2020 SI

Subject: Six Monthly Compliance Report (From Oct'2019 to Mar'2020) for Guru Gobind Singh Refinery at Phullokhari, Bathinda District, Punjab.

Ref: 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 compliance report (from Oct'2019 to Mar'2020) of Guru Gobind Singh Refinery (along with Annexures) on the environmental conditions stipulated by MoEF&CC.

Thanking you,

Very Truly Yours,

Satish Kumar Kalra (DGM-Technical Services)

Cc: Central Pollution Control Board, New Delhi and Punjab Pollution Control Board, Bathinda Punjab. Cc: Punjab Pollution Control Board, 3rd Floor, Room No: 406E, Regional Office, Bathinda.

Enclosures:

Annexure-I: Soft copy of original test reports of manual monitoring in CD.

Annexure-II: Ambient Air Quality Data (from Oct'2019 to Mar'2020).

Annexure-III: CSR activities carried out for improving socio-economic conditions (from Oct'2019 to Mar'2020).

Annexure-IV: CSR activities carried out for community welfare including eco-developmental measures in the surrounding areas (from Oct'2019 to Mar'2020).

Annexure- V: Copy of the advertisement publishing the accordance of Environmental Clearance by MoEF&CC.

Annexure- VI: Copy of mail to MoEF&CC for action plan of Corporate Environment Responsibility (CER).

Annexure-VII: Copy of Air & Water Consent to Operate.

Annexure-Will: Acknowledgement copy of last submitted Six Monthly Compliance Report to MoEF&CC, Northern Regional Office, Chandigarh.

Min. of Environment, Forests & Climate Change ਕੇਯ ਜਂ. 24-25, ਜੈਕਟਾ 31-ए

Bays No.24-25, Sec- 31 A चण्डीगढ़/Chandigarh Compliance Report for the conditions stipulated in Environmental Clearance for Expansion of Refinery from 9 MMTPA to 11.25 MMTPA by HMEL at Village Phullokhari, Tehsil Talwandi Saboo, Dist. Bhatinda, Punjab for the period of Oct'2019 to Mar'2020.

EC Letter No.: J-11011/275/2007 IA II (I) date 22nd June 2015

A. Specific Conditions

S. No.	Specific Conditions as per EC dated 22 nd June 2015		Complian	ce Status	
i	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.	stipulated in 1 1998 and 20 Regional Offi 81/2004-RO summary sta	the environmo 207 has beei ice, Chandiga (NZ)/293-294	environmenta ental clearance n certified by rh vide the l dated 14.0 mpliances as s w:	es granted in MoEF&CC, etter no. 4- 7.2017. The
		EC grant	No. of	No of	No of
		year	Conditions	Conditions	conditio
		Year	Contontions	Complied	ns
		l i		Compiled	pending
		2007	24	24	Nil
		1998	26	26	Nis
		1330	20	20	1411
ii	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 18 th March 2008.	the EP Rules 2008 are bei	1986 vide G5 ng complied	r oil refinery no R 186 E dated with. The sum nissions are	d 18 th March Imary of the
		Parameters	Ra	nge Typical Values	Limits
		ETP treated	l	Values	
		pH		7.21-7.72	6.0-8.5
		COD		8-94 mg/l	125 mg/l
		BOD		0 -14 mg/l	15 mg/l
		Stack Emiss		0 -14 III8/I	13 mg/1
		Parameters		nge Typical Values	Limits
		SO _x	22-	128 mg/Nm ³	500- 645 mg/Nm ³
		NOx	42	95 mg/Nm³	250 - 335 mg/Nm³
		PM	2 -	13 mg/Nm³	39 – 50 mg/Nm³
		СО	15	· 34 mg/Nm³	100 – 300 mg/Nm ³
		* Stack emi based on m		as been comp	
		Sulphur Re	covery Unit		

S. No.	Specific Conditions as per EC dated 22 nd June 2015	Compliance Status		
	dated EL Salle Edgs	Parameters	Range Typic	al Limits
		Sulphur Recovery (in %)	99.94 – 99.9	5 99.9
		H ₂ S (in mg/Nm³)	0-5	10
		NO _x (in mg/Nm ³)	34-70	250
		CO (in mg/Nm³)	19-50	100
ili	Continuous online stack monitoring of SO ₂ , NO _x & CO of all stacks shall be carried out. Low	The stack emission de analysis report for the Annexure-I. Hence, this condition Continuous online sta	e treated efflue has been com ack monitoring	ent is attached as plied with. analyzers for SO ₂ ,
	NOx burners shall be installed.	the data is being tran Low NOx burners hav and heaters. Hence, this condition	nsmitted online e been installed	to CPCB servers. d in all the boilers
ív	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.	ESPs and stacks of provided to petcoke injection facility is ins boilers to control SO;	130 meter he/coal fired bo stalled in the p	eight have been oilers. Limestone
		Hence, this condition	has been com	plied
V	The process emissions SO ₂ , NO ₃ , 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.	The continuous emis data on gaseous en from various units a CPCB servers. Mal emissions and partic being monitored by approved laboratory as Annexure – I. There was no failure system during the person of the per	nissions and pare being trans nual monitoriculate matter in third party (No.), the data of the	articulate matter smitted online to ng for gaseous in stacks are also noEF&CC & NABL which is enclosed
		Hence, this condition	has been com	plied with.
Vİ	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 e.t.c must be regularly monitored.	LDAR program for the implemented for comprogram focuses of pumps, compressors During Oct'2019 to points has been more no major leak was for Sensors for detectinat strategic locations.	e refinery has be ntrol of HC/VC on preventive of flanges and vo Mar'2020, tot nitored under Lound. g HC leakage has with ISBL area	neen prepared and DC emissions. The maintenance of alves. al 42,000 nos. of DAR program and has been provided b. Numbers
	Sensors for detecting HC leakage shall be	Hydrocarbon (proc	ess area)	742
	provided at strategic locations.	Hydrocarbon(analy		74
		Toxic gases + Hydro		285
vii	SO ₂ emissions after expansion from the plant shall no exceed 23.64 TPD and further efforts			

5. No.	Specific Conditions as per EC dated 22 nd June 2015	Co	mpliance Status	-
	shall be made for reduction of SO ₂ load through use of low sulphur fuel, Sulphur recovery units shall be installed for control of H ₂ S emissions. The overall sulphur recovery efficiency of sulphur recovery unit with tail gas treating shall not be less than 99,9 %.	MoEF&CC letter no 07 th August 2018, wexpansion projects refinery remained TPD against the limit The overall sulphu Recovery Unit will compliance period	which includes em . SO ₂ emission from the range of 1 it of 23.64 TPD. It recovery efficients the tail gas trea	issions from the om the existing 2.4 TPD to 17.2 ency of Sulphur itment for the
viii	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.	The sulphur balan considering the atmospheric SO ₂ educts. The sulphand the data maint	ce of the refine sulphur conte missions from var and the sulphur conur balance is reg	ry is calculated nt in crude, rious units, solid ontent in various
ix	Flare gas recovery system shall be installed.	Flare recovery system The month wise Mar'2020) is given	HC recovery (fro	
		Month	HC Recove	ery (MT)
		Oct'19	373	
		Nov'19	35:	1
		Dec'19	453	2
		Jan'20	458	8
		Feb'20	39	7
		Mar'20	62	1
		Average	44	2
x	Ambient air quality monitoring stations, (PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , H ₂ S, Mercaptans, nonmethane-HC and Benzene) shall be set up in	The GLC's (min-ma period of Oct'2019	to Mar'2020 are (given below:
	the complex in consultation with State Pollution Control Board, based on occurrence	Parameters	Range	CPCB Limit
	of maximum ground level concentration and down-wind direction of wind. The monitoring	PM 10 (µg/m³)	30.61 - 106.26	100
}	network must be decided based on modeling	PM _{2.5} (μg/m ³)	16.47 – 58.75	60
	exercise to represent short term GLCs. Trend	SO ₂ (μg/m³)	11.14 - 25.89	80
	analysis w.r.t past monitoring results shall also		16.96 – 21.35	80
	be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	-	0.97 – 1.98	05
	and annual quart, in this project a said	Non – Methane HC (μg/m³)	0.608 - 0.754	-
		The ambient air qu the period Oct'20 Annexure – II.	,	
		Hence, this conditi	on has been comp	olied with.

S. No.	Specific Conditions as per EC dated 22 nd June 2015	Compliance	: Status
xi	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic	In the existing refinery, one use in case of power failure been installed near Main Cheight of 30 meter.) of capacity 6 MW has
	enclosure/silencer shall be installed wherever it is possible.	Acoustic enclosure has been to mitigate the noise pollution	-
		No additional DG set is provi	ded under this project.
xii	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	The total water usage a generation/reuse quantities stipulated limits.	and industrial effluent
	generation shall not exceed 720m³/h and treated in the effluent treatment plant. Out of	Average consumption of ra Oct'2019 to Mar'2020 is 1, which is given below:	
	boiler blow down shall be treated through Reverse Osmosis (RO) and Demineralize Plant	Month	Raw water consumption (m³/hr.)
	(DM) and permeate shall be recycled for cooling tower make up and boiler blow down.	Oct'19	2046
		Nov'19	1988
	RO rejects shall be evaporated in the Multiple effect evaporator (MEE). Process effluent and	Dec'19	1838
	condensate from MEE shall be treated in the	Jan'20	1804
	ETP comprising API and TPI oil removal units,	Feb'20	1955
	biological treatment units such as SBR, MBR and tertiary treatment unit. Treatment	Mar'20	1811
	effluent shall be recycled for cooling tower	Average	1907
	make up water and reused for horticulture/gardening. Domestic sewage shall be treated in sewage treatment plant (STP).	The permission for drawl of obtained vide letter no. 02 dated 30.07.2018. The treated effluent genera	1/2014- (2) 1128-4426/1
		 425 m³/hr and boiler bl blow down is in range of 22! Boiler blow down and cooli treated in RO/DM units and back into process. The RO is solar pond / evaporation plan 	5 – 250 m ³ /hr. ng tower blow down are the permeate is recycled rejects are evaporated in
		During Oct'2019 to Mar'202 from ETP was used for development.	•
		Average 60m³/day of sewag sewage treatment plant.	e was treated in domestic

S. No.	Specific Conditions as per EC dated 22 nd June 2015	Compliance Status
xiii	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.	All the effluent after treatment are routed to treated effluent tank. The online flow meter, pH, COD, BOD & TSS analysers are installed at ETP outlet and data is transmitted to CPCB portal. The ETP outlet data is uploaded along with six monthly compliance report on company's website and also submitted to RO, MoEF&CC, Chandigarh.
		The summary of the treated effluent quality for the period Oct'2019 to Mar'2020 is given below: Parameters Range Limits
xiv	Oil catchers / oil traps shall be provided at all possible locations in rain / storm water drainage system inside factory premises.	Presently 2 nos. of oil catchers are provided at upstream of storm water pond within refinery complex.
xv	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.	The oily sludge generated is disposed in Delayed Coker Unit (DCU) and balance oily sludge is disposed in Secured Landfill Facility within the refinery complex. The annual returns (Form-IV) of hazardous waste containing the data for oily sludge that is generated & disposed for the period of 2019-20 was submitted vide letter no. HMEL-TS-40-ENV 473 on dated 1st June, 2020. During Oct'2019 to Mar'2020, 6621 MT oily and chemical sludge reprocessed in Delayed Coker Unit.
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.	The rules and regulations specified under MSIHC Rules, 1989, have been incorporated in the design requirements of refinery and its associated facilities and accordingly implemented. The hazardous waste is handled, stored, transported and disposed as per the Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016 and the hazardous waste authorization issued by PPCB.
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.	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 are disposed in this SLF. Hence, membership for the common TSDF has not been taken. Spent catalyst from various units are disposed to SPCB authorized recyclers/reprocessors. Hence, this condition is complied with.

S. No.	Specific Conditions as per EC dated 22 nd June 2015		Compliance	2 Status
xviii	Proper oil spillage prevention management	The oil spi	illage/leakage previ	ention management pla
7,-11,	plan shall be prepared to avoid		·	detectors are installed i
	spillage/leakage of oil/petroleum products	the process area, the details of which are given be		
	and ensure regular monitoring.		ype of Detector	Numbers
	and another Against Marketing		rbon (process area	
				-
		<u> </u>	rbon (analyzer shel	<u> </u>
		Loxic ga	ses + Hydrogen	285
		ı		nos. of visual camera ar
		of leak/fir	·e.	area for early detection
xix	The company shall strictly follow all the recommendations mentioned in Charter on	The CREP as under:		implementation status
	Corporate Responsibility for Environmental Protection (CREP).	Sr No	Requirement of CREP	Status
		1	Installation of	Completed
		1	online	Completed. Continuous
				Emission/Effluent
			monitoring	· ·
			system	Monitoring System
		[]		have been installed in
				stacks and ETP outlet
				Continuous Ambien
				Air Quality
		11		Monitoring Stations
				(CAAQMS) are also
				installed. The CEM:
				and CAAQMS data i
				transmitted online
				data to CPCB server
				since March 2016.
		2	Zero Liquid	Completed.
			Discharge	GGSR is ZLD refinery
			Discharge	Entire treated water
				from ETP is used for
				greenbelt
				horticulture
				development.
		3	Oily Sludge	Oily sludge generate
			management	from ETP is processe
		[]		in DCU or sold to
				offsite reprocessor
				or disposed in SLF.
		4	Installation of	Completed.
			VOC collection	Since design stage
			and treatment	VOC collection and
			system in ETP.	treatment system i
			' '	installed and
				operational in ETP.
		5	Air Emission	a. Use of Lov
		'	reduction	Sulphur Fuel Oil an
				1
			measures	Fuel Gas in Refiner
			adopted.	(<0.5 % sulphur in F0
				& < 150 mg/nm
				sulphur in FG).

S. No.	Specific Conditions as per EC dated 22 nd June 2015	Compliance Status
		b. Use of low NOx burners in all heaters and boilers to minimize NOx emissions. c. Stack heights have been provided in line with minimum stack height criteria as per CPCB Standards d. Installation of Third Stage Separator (TSS) and Fourth Stage Separator (FSS) in 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 Blow down System to minimize hydrocarbon emissions. h. LDAR program implemented.
хх	Occupational Health Surveillance of the workers should be done on regular basis and records maintained as per Factories Act.	Health check is done once in six (6) months for workers working in operation area and yearly once for workers working in non-operational area. The health checkup records are being maintained as per Factories Act. The condition is 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.	Green belt has been developed in consultation with Forest Department, Bathinda and as per the CPCB guidelines. Approx. 3,41,000 saplings have been planted in about 391 acre. Greenbelt of 125 meters wide has been developed in predominant wind directions i.e. East, South East, South, South West & West direction and 70 meters wide in the remaining directions i.e. North West, North, and North East directions.
xxii	Company shall prepare project specific environmental manual and a copy shall be made available at the project site for the compliance.	Project Environmental Requirements was furnished to the Design and Engineering Contractor and the Projects Team for incorporating the environmental specifications/requirements during the design engineering phase of the project so as to ensure compliance to the regulatory requirements.

S. No.	Specific Conditions as per EC dated 22 nd June 2015	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.	All the recommendations mentioned in the Rapid Risk Assessment report, disaster management plan & safety guidelines has been implemented.
xxiv	All commitment made regarding issues raised during the public hearing/consultation meeting held on 14 th October, shall be satisfactorily implemented. Accordingly provision of budget to be kept.	Total 13 queries were raised during Public Hearing for the expansion project. 12 queries has been completed. 1 query was related to 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.	The details of Enterprise Social Responsibility are enclosed as Annexure-III. The time bound action plan of which has been submitted to RO, MoEF&CC, Chandigarh Hence, the condition is complied with.
xxvi	Company shalf adopt Corporate Environment Policy as per the Ministry's O.M No. J-11013/41/2006-IA II (I) dated 26 th April 2011 and implemented.	We have already adopted & implemented 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.	The project was completed in the year of 2017. During the project, canteen facility, tollet facility, RO drinking water & medical health care facility etc. was provided. Hence, this condition is complied with.

B. General Conditions

S. No.	General Conditions as per EC dated 22 nd June 2015	Compliance
j	The project authorities shall strictly adhere to the stipulations made by the State Government & Punjab Pollution Control Board.	All the stipulations made by the State Government and 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.	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 7 th August 2018. There have been no deviations or alterations made in the project proposal from those submitted to MoEF&CC.
		Hence, this condition is complied with.

S. No.	General Conditions as per EC dated 22 nd June 2015	Compliance
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.	Five (5) nos. of Continuous Ambient Air Quality Monitoring stations have been installed in consultation with PPCB in upwind & down wind direction of the existing Refinery. Hence, this condition is complied with.
lv	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).	The overall noise levels in and around the plant areas are well within the standards. Various noise control measures such as acoustic hoods, enclosures etc. have been provided for reducing noise impact from high noise generating equipment. The day time and night time noise level for the period Oct'2019 to Mar'2020 was in the range of 66-74 dBA and 61-66 dBA respectively. Please refer Annexure-I ambient noise monitoring reports.
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.	Total 6 nos. of rain water harvesting & ground water charging pits are installed inside the refinery premises. In refinery, storm water pond is provided to harvest rain water. Collected storm water is being utilized for firefighting and 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.	The authorization for collection, storage & disposal of Hazardous waste is available for refinery and is valid till 30 July 2020.
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 be constructed.
viii	Usage of Personal Protection Equipment's by all employees/workers should be ensured.	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.	Each worker is imparted safety training before issuing gate pass and refresher training is done every months. Periodic medical examination is done six monthly for workers working in operational area and yearly for workers working in non-operational area. This condition is being complied with.
х	The company shall also comply with all the environmental protection measures and safeguards 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.	This condition is complied with.

S. No.	General Conditions as per EC dated 22 nd June 2015	Compliance
хi	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 for improving socio-economic conditions of the surrounding areas is attached as Annexure-III.
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 is enclosed as Annexure-IV.
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.	A dedicated Environment Management Cell headed by Deputy General Manager (Environment) looks after the Environmental Management and monitoring functions of the refinery. GGSR is also having state of the art laboratory with environment 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.
χV	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parishad / Municipal Corporation Urban local Body and the local NGO, if any, from who suggestions /representations, if any, were received while processing the proposal.	This condition has been complied with. The company has not received any suggestions/representations 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 Environmental Clearance conditions including results of the monitored data are being sent to regional offices of MoEF&CC, CPCB and PPCB. The copy of Environment Clearance and six monthly compliance reports has been uploaded on the HMEL website in 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 the copy of the same is uploaded on the HMEL website in the link given below: http://www.hmel.in/corporate-sustainability-disclosures-report

S. No.	General Conditions as per EC dated 22 nd June 2015	Compliance
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 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.	The accordance of Environmental Clearance for the project was advertised in two widely circulated local newspaper namely Tribune Bathinda (English) and Ajit (Punjabi) on 30th June 2015. A copy of these advertisement was submitted the Regional Office, MoEF&CC, Chandigarh vide our letter no. 9112-000-TSHQ-009-2015-14 dated 7th July, 2015.
хіх	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 projects milestones are as follows: 1. Date of final board approval is 21st December, 2012. 2. Date of financial closure is 20th March, 2013. 3. Date of start of project is 9th September, 2015.

Six Monthly Compliance Report from Oct'2019 to Mar'2020 for Environment Clearance in respect of Fuel Quality Upgradation Project at Guru Gobind Singh Refinery, Village Phulokhari, Bathinda District, Punjab.

EC No: F. No. J-11011/386/2016-IA-II (I) dated 7th August 2018.

10.0: Specific Conditions

S. No. (As per EC letter)	Specific Conditions	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.	The following measures have been implemented to minimize the emissions from the proposed project: 1. Regular Sprinkling of water on roads. 2. Enhancing green cover by planting 35170 in the period of Oct'2019 to Mar'2020 trees within the premises. 3. Widening and bitumen laying of roads. 4. Bitumen carpeting in vehicle parking areas at refinery main gate.
(ii)	The project proponent shall develop local air quality management plan in consultation with SPCB and implemented to achieve desired standards.	refinery main gate. 5. Discouraging 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. Thus, this condition is being complied with.
(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.	The condition will be complied with after fully operational of project.
(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.	The Consent to Establish for the project has been obtained from PPCB vide letter no. 2940 dated 6 th May'19. Online application is applied on PPCB portal for obtaining Consent to Operate. Hence, the condition is being complied with.
(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.	The existing refinery complex is a Zero Liquid Discharge (ZLD) refinery. The additional effluent that will be generated from the project will be treated in the existing ETP. Treated effluent is recycled and reused for greenbelt/horticulture etc. Hence, no waste/treated water is discharged outside the premises.
(vi)	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.	This condition has been complied with. The authorization for collection, storage & disposal of Hazardous waste is available for refinery and is valid till 30 th July, 2020.
(vii)	National Emission Standards for Petroleum Oil Refinery issued by the Ministry vide G.S.R. 186(E) dated 18 th March, 2008 and G.S.R. 595(E) dated 21st August, 2009 as amended time to time shall be followed.	

S. No.	Specific Conditions	Compliance	Status
(As per	·	_	
EC letter)			<u>. </u>
(viii)	Total SO ₂ emission from the refinery shall not	This condition will be compli-	
tial	exceed 990 kg/hr. The control source and the fugitive emissions,	Exiting SO2 emission: Average The DHDT and HGU plants	
(ix)	suitable pollution control devices shall be installed	prescribed CPCB/PPCB norm	_
	with different stacks (attached to DHDT, HGU,	prescribed Crcb/Frcb floriii	s for the remiery.
i	Prime G) to meet the prescribed norms and/or the	During emergency shutdow	vn of these units, the
	NAAQS. The gaseous emissions shall be dispersed	gaseous emissions will be ro	
	through stack of adequate height as per	height 140 m.	
	CPCB/SPC8 guidelines.		
(x)	Total fresh water requirement shall not exceed	The raw water consumption	
	5,952 cum/hr (including 32 cum/hr for the	for the period of Oct'2019 to	Mar'2020 is given below:
	proposed project) to be met from Kotla Canal. Necessary permission in this regard shall be		Raw water
	obtained from the concerned regulatory	Month	consumption (m³/hr.)
	authority.	Oct'19	2046
			·
		Nov'19	1988
		Dec'19	1838
]		Jan'20	1804
		Feb'20	1955
		Mar'20	1811
		Average	1907
(xi)	Process effluent/any wastewater shall not be	The additional water implementation of proposed has been granted will not ex Necessary permission from authority is already obtained This condition will be complete.	ceed 5,952 m³/hr. the concerned regulatory d. ied with.
	allowed to mix with storm water. The storm water from the premises shall be collected and discharged through a separate conveyance system.	be routed to existing ETP dedicated pipe network, we routed to separate network mixing of process effluent same has been incorporated for the project.	thereas the storm water (open channels) to avoid with storm water. The
		The condition is being comp	lied 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.	All hydrocarbons are stored proposed to be installed in transfer is done through pur This condition is complied w	in tanks. No new tank is the project. Hydrocarbon mps. vith.
(ilix)	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.	Any additional ETP sludge g back in DCU. Fly ash gener disposed to cement industri	enerated will be recycled ated from CFBC boilers is
(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.		e, this condition will be

S. No.	Specific Conditions	Compliance Status
(As per		
EC letter) (xv) (xvi)	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. The company shall undertake waste minimization measures as below: a. Metering and control of quantities of active ingredients to minimize waste b. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. c. Use of automated filling to minimize spillage. d. Use of Close Feed system into batch	Fly ash generated from CFBC boilers is stored in 2 nos. of silos and is then sent to cement industries. Thus condition is being complied with. The condition will be complied with. a. All feed stream flow will be measured & auto controlled. b. No by-products will be produced in BS-VI fuel quality up-gradation project. c. Raw material and products will be transferred through pipe lines. d. As the process flow will be continuous, batch
(mill)	e. Venting equipment through vapor recovery system f. Use of high pressure hoses for equipment clearing to reduce wastewater generation	reactors are not proposed. Hence, not applicable. e. Ventilation equipment will be connected to closed flare system in which flared hydrocarbons are recovered. f. Noted and will be complied with.
(xvii)	The green belt of 5-10 m width shali 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.	Green belt has been developed in consultation with Forest Department, Bathinda, as per the CPCB guidelines. At present approx. 3,41,000 saplings have been planted in about 391 acre of land. A greenbelt of about 125 meters wide in predominant wind direction i.e Fast, South Fast, South, South West, & West direction and 70 meters wide green belt in the remaining directions i.e North West, North, and North East direction have been developed. Selection of species for greenbelt development have been done based on the agro-climatic zone of Punjab prescribed by CPCB in its manual "Guidelines for Developing Greenbelts'. Hence, this condition is complied with.
(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 total project cost has been allocated for Corporate Environment Responsibility (CER) and the time bound action plan has been submitted to MoEF&CC. The copy of the mail to MoEF&CC is enclosed as Annexure-VI. 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: 66 lakhs.

S. No.	Specific Conditions	Compliance Status
(As per		
EC letter)	For the BC and analytical limits and the shall	One D.C. and of 1010 live have installed for
(xix)	For the DG sets, emission limits and the stack height shall be in conformity with the extant	One D.G. set of 1010 kVA has been installed for emergency power for the fuel quality up-gradation
	regulations and the CPCB guidelines. Acoustic	project. The emission limits and the stack height will
	enclosure shall be provided to DG set for	be in conformity with the CPCB guidelines. Acoustic
	controlling the noise pollution.	enclosures has been provided as noise control
	controlling the holse political.	measures.
(xx)	The unit shall make the arrangement for	Firefighting system in manufacturing process and
	protection of possible fire hazards during	material handling areas are already installed as per
	manufacturing process in material handling.	OISD standards.
Lund	Firefighting system shall be as per the norms.	Online CO. NOv. CO. and CDM analyzans for the
(xxi)	Continuous online (24*7) monitoring system for stack emissions shall be installed for	Online SO ₂ , NOx, CO and SPM analysers for the existing refinery have been installed and the online
	measurement of flue gas discharge and the	data is being transmitted to CPCB servers. Similarly
	pollutants concentration, and the data to be	online continuous effluent monitoring systems and
	transmitted to the CPCB and SPCB server. For	flow meters have been installed at the existing ETP
	online continuous monitoring of effluent, the unit	and the online data is being transmitted to
1	shall install web camera with night vision	CPCB/PPCB. For stack in the proposed project, CEMS
	capability and flow meters in the channel/drain	for SOx, NOx, CO and PM have been installed & the
	carrying effluent within premises	online data will be transmitted to CPCB/PPCB after
		the commissioning of the project.
(xxii)	Occupational health surveillance of the workers	Complied.
	shalf be done on a regular basis and records	Occupation health surveillance is done once in six (6)
	maintained as per the Factories Act.	months for employees working in operational area
		and yearly once for employees working in non- operational area, and records maintained as per the
		Factories Act.
		This condition is being complied with.

10.1: Generic Conditions

S. No. (As per EC letter)	General 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.	All the conditions stipulated by the MoEF&CC, CPCB and PPCB are being strictly adhered to.
(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.	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.	Five (5) nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed at the periphery of the refinery in consultation with Punjab Pollution Control Board (PPCB). Hence, this condition is complied with.

(iv)	The National Ambient Air Quality Emission	The National Ambient Air Quality Emission Standards
(17)	Standards issued by the Ministry vide G.S.R No	issued by MoEF&CC vide G.S.R. No 826 (E) dated 16 th
	826(E) dated 16 th November, 2009 shall be	November 2009 is being monitored and the data of
	followed.	which is being transmitted online to CPCB servers.
(v)	The overall noise levels in and around the plant	The overall noise levels in and around the plant areas
	area shall be kept well within the standards by	are well within the standards. Various noise control
	providing noise control measures including	measures such as acoustic hoods, enclosures etc. have
	acoustic hoods, silencers, enclosures etc. on all	been provided for reducing noise impact from high
	sources of noise generation. The ambient noise	noise generating equipment. The day time and night
	level shall conform to the standards prescribed	time noise level for the period Oct'2019 to Mar'2020
	under Environment (Protection) Act, 1986 Rules	was in the range of 66-74 dBA and 61-66 dBA
	viz. 75 dBA (day time) and 70 dBA (night time).	respectively.
		The detailed monitoring reports for the period of
		Oct'2019 to Mar'2020 is given in Annexure-I.
		Out 2013 to this about it gives in an example in
		Hence, this condition has been complied with.
(vi)	The company shall harvest rainwater from the	Total 6 nos. of rain water harvesting & ground water
	roof tops of the buildings and storm water drains	charging pits are installed inside the refinery
	to recharge the ground water and use the same	premises. In refinery, storm water pond is provided to
	water for the process activities of the project to	harvest rain water. Collected storm water is being
	conserve fresh water	utilized for firefighting and horticulture.
(vii)	Training shall be imparted to all employees on	Each worker is imparted safety training before issuing
	safety and health aspects of chemicals handling.	gate pass and refresher training is done every 6
	Pre-employment and routine periodical medical examinations for all employees shall be	months. Pre-employment and periodic medical examinations
	examinations for all employees shall be undertaken on regular basis. Training to all	are done six monthly for workers working in
	employees on handling of chemicals shall be	operational area and yearly once for workers working
	imparted.	in non-operational area.
	111,621,123.	
_	<u> </u>	This condition is being complied with.
(viii)	The company shall also comply with all the	This condition is being complied with.
	environment protection measures and safeguards	
l	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.	
(ix)	The company shall undertake all relevant	This condition is being complied with. Details of
(,,	measures for improving the socio-economic	activities undertaken for improving socio-economic
	conditions of the surrounding area. ESC activities	conditions of the surrounding areas is attached as
	shall be undertaken by involving local villages and	Annexure-III.
	administration.	
(x)	The company shall undertake eco-developmental	This condition is being complied with. Details of eco-
	measures including community welfare measures	developmental measures including community
	in the project area for the overall improvement of	, -
	the environment.	Annexure-IV.
(xi)	The company shall earmark sufficient funds	
	towards capital cost and recurring cost per annum	capital cost and recurring cost per annum to
	to implement conditions stipulated by the Ministry of Environment, Forest and Climate	implement conditions stipulated by the MoEF&CC as well as PPCB will not be diverted for any other
	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.	
	A STATE OF THE STA	·

(xĭi)	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.	The company did not received any suggestions/representations while processing the proposal. This condition has been complied with.
(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 has been noted and is being complied with. Last six monthly compliance report was submitted to Regional Office of MoEF&CC, the respective Zonal office of CPCB and SPCB vide letter no. HMEL-TS-40-ENV 653, dated 6 th Dec, 2019. The 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.	The environment statement for each financial year ending 31st March in Form-V is being submitted to PPCB for the existing refinery project. Similarly, for the proposed project the environmental statement in Form-V as mandated will be submitted to PPCB.
(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	The copy of the advertisement publishing the accordance of Environmental Clearance by MoEF&CC in the two local widely circulated newspaper is attached as Annexure-V. 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 will be complied with. The requested projects milestones are as follows: 1. Final board approval of the Project: 30th December, 2016. 2. Financial closure of the Project: Financial closure is pending 3. Start of the Project: 6th May, 2019.

Guru Gobind Singh Refinery, Bathinda

Scanned copy of original Manual Environmental Monitoring Test reports from Oct'2019 to Mar'2020

- 1. Ambient Air Quality Monitoring Reports
- 2. Noise Monitoring
- 3. Stack Monitoring
- 4. Ground water monitoring
- 5. VOC monitoring
- 6. ETP treated water results
- 7. STP treated water results

Scanned copy of original Manual Environmental Monitoring Test reports Oct'2019



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Job Booking No.: NL/100001490,1501,12,23,34,45,56,67

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.8hatinda, Punjab, India

Test Report Date: 07/11/2019

: Ambient Air Quality Monitoring Station (AAQMS)-1

: Ambient Air Quality Monitoring

: To Check the Pollution Load

Sample Particulars

Nature of the Sample

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By Sampling Durotion (Hrs.)

Sampling Location

: IS 5182 (Peri 14) : Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter				
		(ms/mm)	Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP*), ng/m³	Lead (as Pb), µg/ m³	
03/10/2019	9:40	1.16	4.912	BDL	BDL	BDL	
07/10/2019	9:25	1.08	4.108	BDL	BDL	BDL	
10/10/2019	9:20	1,16	4.412	BDL	BDL	BDL	
14/10/2019	9:15	1.09	4,236	BDL	BDL	BDL	
17/10/2019	9:35	1,12	4.899	BDL	BDL	BDL	
21/10/2019	9:30	1.16	3.992	BDL	8DL	BDL	
24/10/2019	9:10	1.13	3,791	BDL	BDL	BDL	
30/10/2019	9:15	.).08	4.334	BDL	BDL	BDL	
National Ambient A Standards (2009)	ir Quality	Monitoring	20	6	01	01	
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	(S:5182 (P-22)	

Remork:

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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^{*}NAAQS - Notional Ambient Air Quality Standards; Schedule-VII, [Rule 3 (38)], [Part-II-sec.;-3(ij)] 16.11.2009, 8DL-Betow Detection Limit, Arsenic-8DL (LOQ- 6.0) BAP-8DL (LOQ- 1.0) Lead-BDI, [LOQ-1,0], N.A.-Not Applicable, AFR-Average flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable



Sample Particulars Nature of the Sample

Sompling Location

Purpose of Monitoring

Manitoring Canducted By

Sampling Duration (Hrs.)

Method of Sampling

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

: Ambient Air Quality Monitoring

Test Report Date: 07/11/2019

: Ambient Air Quality Monitoring Station (AAQMS)-2

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	Time AFR for RDS (m3/min)	Parameter			
			Nickel	Arsenic	Benzo(a)pyren	Lead
			(as NI),	(as As),	e (as BAP'),	(as Pb),
_			ng/m³	ng/m³	ng/m³	μg/ m³
03/10/2019	10:10	1.15	4.516	BDL	BDL	BDL
07/10/2019	9:55	1.14	3.998	3DL	BDL	BDL
10/10/2019	9:50	1.08	3.822	BDL	BDL	BDL
14/10/2019	9:45	1.21	4.628	BDL	BDL,	BDL
17/10/2019	10:05	1.11	4.112	BDL	BDL	BDL
21/10/2019	10:00	1.15	4.202	BDL	BDL	BDŁ
24/10/2019	9:40	1.20	4.429	BDL	BDL	BDL
30/10/2019	9;45	1.13	4,966	BDL	BDL	BDL
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01
Test Method			AAS	AAS	IS:5182	IS:5182
			Method	Method	(P-12)	(P-22)

Remark:

NAAQS - National Ambient Air Quality Standards; Schedute-Yii, IRule 3 (381), [Part-li-sec.-3ii] 16.11, 2009, 8DL-8elow Detection Limit, Arsenic-8DL (LOG- 6.0) 8AP-8DL [LOG- 1.0] Lead-BDI, [LQQ+1,0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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♥ 43, Sector-1A, Ext. Bhalla Enclave Channi Himmat- 180015, Jammu (J&K)

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Job Booking No.: NL/100001492, 1503, 14, 25, 36, 47, 58, 69 Test Report Date: 07/11/2019

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-3

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	ne AFR for RDS (m3/min)	Parameter				
			Nickel (as Ni),	Arsenic (as As),	Benzo(a)pyren e (as BAP'),	Lead (as Pb),	
			ng/m³	ng/m³	ng/m³	μg/ m³	
03/10/2019	10:40	1.13	4.392	BDL	BDL	BDL	
07/10/2019	10:25	1.15	4.446	BDL	BDL	BDL	
10/10/2019	10:20	1.19	4.497	BDL	BDL	BDL	
14/10/2019	10:15	1.20	4.189	BDL	BDL	BDL	
17/10/2019	10:35	1.14	3.965	BDL	BDL	BDL	
21/10/2019	10:30	1.22	4.582	BDL	BDL	BDL	
24/10/2019	10:10	. 1.09	3.982	BDL	BDL	BDL	
30/10/2019	10:15	1.21	4.972	BOL	BDL	8DL	
National Ambient Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method	_	 	AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)	

Remark:

NAAGS - National Amblent Air Quality Standards; Schedule-VII. (Rule 3 (38)). [Part-II-sec., 3(II)] 16.11, 2007, BDL-Below Detection Limit, Arsenic-BDL [LOQ-6.0] BAP-BDL [LOQ-1.0] Lead-BDL (LOQ-1,0), N,A,-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Stallon, N.A.-Not Applicable

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwaridi Sabo Distt, Bhatinda, Puniab, India

Job Booking No.: NL/100001493, 1504, 15, 26, 37, 48, 59, 70 Test Report Date 07/11/2019

Sample Particulars

Nature of the Sample Sampling Location Purpose of Monitoring Method of Sampling

Monitoring Conducted By Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-4

: To Check the Pollution Load

; IS 5182 (Part 14) ; Mr. AnimeshJha

: 24 Hts.

Analysis Report

Date of Sampling	Time	Time AFR for RDS (m3/min)	Parameter				
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP'), ng/m³	Lead (as Pb), µg/ m³	
03/10/2019	11:10	1.09	4.321	BDL	8DL	, BDL	
07/10/2019	10:55	1.18	3.662	BDL	BDL	BDL	
10/10/2019	10:50	1.09	3.721	BDL	BDL	BDL	
14/10/2019	10:45	1.12	3,822	BDL	BDL	BDL	
17/10/2019	11:05	1.12	4.622	BDL	8DL	BDL	
21/10/2019	11:00	1.14	4.701	BDL	BDL	BDL	
24/10/2019	10:40	1.13	3.886	BDL	BDL	BDL	
30/10/2019	10:45	1,22	3.524	BDL	BDL	BDL	
National Ambient Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method			AAS Method	AAS Method	!S:5182 (P-12)	IS:5182 (P-22)	

NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (38)], [Part-II-sec.,-3(i)] 16,11,2009, BDL-Below Detection Limit, Arsenic-8DL [LOQ- 6.0] BAP-BDL [LOQ- 1.0] Lead-BDI, (LOQ- 1,0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable

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491-191-2465597

Job Booking No.: NL/100001494, 1505,16, 27, 38, 49, 60, 71

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TEST REPORT

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Puniah, India

Test Report Date: 07/11/2019

Sample Particulars

: Ambient Air Quality Monitoring Nature of the Sample

Sampling Location : Ambient Air Quality Monitoring Station (AAQMS)-5

Purpose of Monitoring : To Check the Pollution Laad

Method of Sampling : IS 5182 (Part 14) Monitoring Conducted By : Mr. Animesh Jha

Samplina Duration (Hrs.) : 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter				
			Nickel	Arsenic	Benzo(a)pyren	Lead	
			(as Ni),	(as As), ng/m³	e (as BAP*),	(as Pb),	
			ng/m³		ng/m³	μg/ m³	
03/10/2019	11:40	1.19	4.262	BDL	BDL	8DL	
07/10/2019	11:25	1,22	4.488	BDL	BDL	BDL	
10/10/2019	11:20	1,12	4.521	BDL	BDL	BDL	
14/10/2019	11:15	1.13	3.697	BDL	BDL	BDL	
17/10/2019	11:35	1.14	4.625	BDL	BDL	BDL	
21/10/2019	11:30	1.12	3,828	BDL	BDL	. BDL	
24/10/2019	11:10	1.20	4.348	BDL	BDL	BDL	
30/10/2019	11:15	1.18	4.867	BDL	BDL	BDL	
National Ambient Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method			AAS	AAS	15:5182	IS:5182	
			Method	Method	(P-12)	(P-22)	

Remark:

NAAQS - National Ambient Air Quality Standards; Schedule-VII. [Rule 3 (38)]. [Part-II-sec.-3(I)] 16.11.2009, BDL-Below Detection Limit, Arsenic-BDL [LOQ- 6.0] BAP-BDL [LOQ- 1.0] Lead-BDL (LOQ- 10), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullakhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Job Booking No.: NL/100001495, 96, 1506, 07, 17, 18, 28, 29,

39, 40, 50, 51, 61, 62, 72, 73

Test Report Date: 07/11/2019

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Air Quality Monitoring Station (AAQMS)-6

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of	Time	AFR for					Parameter	-·	_		'
Sampling		(m3/m	Nickel (as Ni), ng/m³	Arsenic (as As), ng/m ³	Benzo(a)pyre ne (as BAP*), ng/m³	Lead (as Pb), µg/ m³	Particula te matter (PM2.5), µg/m³	Particulat e matter (PM10), µg/m³	Sulphur Dloxide (as\$O ₂) ,µg/m ³	n Dioxide (asNo ₂) ,µg/m ³	Carbo n Monox ide (as CO), mg/m³
03/10/2019	12:10	1.22	4,029	BDL	BDL	8DL	48.1	98.6	30,8	40.2	0.692
07/10/2019	11:55	1,12	3.960	BDL	BDL	BDL	54.4	92.6	26.2	39.6	0.682
10/10/2019	11:50	1.16	4.126	BDL	BDL	BDL	54.6	97.2	27.8	39.8	0.689
14/10/2019	11:45	1.18	4.792	BDL	BDL	BDL	49.2	101,2	32.8	42.6	0.698
17/10/2019	12:05	1.13	4.926	BDL	BDL	BDL	59.8	99.4	34.2	44.8	0.674
21/10/2019	12:00	1.18	4.664	BDL	BDL	BDL	56.4	97.7	31.9	41.2	0.646
24/10/2019	11:40	1.14	4.415	BDL	BDL	BDL	58.6	93.1	29.5	39.8	0.609
30/10/2019	11:45	1.08	4.322	BDL	BDL	BDL	60.5	98.8	32.6	42,9	0.596
National Am Monitoring Standards (2		Quality	20	6	01	01	60	100	80	80	04
Test Method		ı	AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	NDIR Method	IS:5182 (P-23)

Remark: NAAQS - National Ambient Air Quality Standards; Schedule-VII, (Rule 3 (38)), [Port-It-sec.-3(1)] 16.11.2009, BDL-Below Detection Limit, Arsenic-BDI/[LPQ-6.0] BAP-BDL [LOQ-1.0]

Lead-BDL [LOQ- 1.0], N.A.-Not Applicable. AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo Distt.Bhatinda, Punjab, India

Job Booking No.: NL/100001594 Test Report Date: 07/11/2019

Sample Particulars:

Nature of the Sample : Ambient Noise Date of Monitoring : 31/10/2019

Purpose of Monitoring : To Check the Pollution Load

Place of Monitoring : HMEL Refinery Monitoring Conducted By : Mr. AnimeshJha

Protocol Used : (\$:9989

Analysis Report

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
Permissibl	e Limit in *dB(A) Leq For Industrial Area	75 dB(A)	70 dB(A)
1	Near Refinery Main Gate	70.2	63.2
2	Near Fire Water Reservoir	70.6	63.2
3	Near Road-Crude Oil Tanks	72.4	62.3
4	Near ETP and Flare	71.2	61.2
5	Near Storm Water Pond East Side	73.8	65.2
6	Near Sulphur Yard South East Side	73.4	64.2
7	Near Rail Loading Dispatch South East Side	70.2	65.4
8	Near CPP North East Side	72.8 ·	62.6
9	Near Poly Propylene Dispatch Area	71.5	64.4
10	Near Ecological Pond Area	70.4	63.4

*dB (A) Leq denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing. CPC8 = Central Pollution Control Board

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

Area Code	Category of Area	Limits dB (A) Leq				
				Day Time (6AM - 10PM)	Night Time (10PM – 06AM)	
A	Industrial Area	75	70			
В	Commercial Area	65	55			
С	Residential Area	55	45			
D	Silence Zone	50	40			

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Job Booking No.: 100001600 Test Report No.: 201910220112 Test Report Date: 29/10/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 22/10/2019

Time of Sampling : 12:46

Test Started on : 24/10/2019
Test Completed On : 29/10/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : Naphtha Heater Sampling method : IS-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Graund Level (m): 30Diameter of the stack(m): 1.5Sampling duration (min): 38

Observations:

Flue Gas Temperature °C : 209
Ambient Air Temperature °C : 30
Flue Gas Velocity (m/s) : 10.12

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Results Limits mg, (mg/Nm³)		Test Method
			For Gas	For Liquid	
1	Particulate Matters (as PM)	.1.5	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	8.4	50	850	(S-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	21.2	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	36.1	100	150-	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: 100001599 Test Report No.: 201910220111

Test Report Date: 29/10/2019

Nature of the sample : Stack Gas Emission

Date of Samplina : 22/10/2019 Time of Sampling : 11:50 Test Started on : 24/10/2019 Test Completed On : 28/10/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HGU-2

Sampling method ; IS-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65 Diameter of the stack(m) : 2.0 Sampling duration (min) :37

Observations:

Flue Gas Temperature °C : 185 Ambient Air Temperature °C : 28 : 9.68 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits 1	mg/Nm³	Test Method
			For Gas	For Liquid	
1	Particulate Matters (as PM)	1,13	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	7.8	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	84.29	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	9.1	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	0	5	USEPA Method 29 By AAS

Remark: Below Detection Limit

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100001598 Test Report No.: 201910220110 Test Report Date: 29/10/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

: 22/10/2019 Date of Sampling Time of Sampling : 10:40

Test Started on : 24/10/2019 : 28/10/2019 Test Completed On

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HGU-1

: IS-11255 (P-7) Sampling method

Normal operating schedule : As per requirement

: Mild Steel Type of stack /duct

Stack height from Ground Level (m) : 65 Diameter of the stack (m) : 2.0 Sampling duration (min) :33

Observations:

Flue Gas Temperature °C :180 Ambient Air Temperature °C : 29 Flue Gas Velacity (m/s) : 10.77

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits r	mg/Nm³	Test Method
			For Gas	For Liquid	
1	Particulate Matters (as PM)	3.19	5	50	IS-11255 (P-1)
2	Oxides af Sulphur (as SOx)	6.3	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	98.37	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8.1	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)"	BDL(LOQ-0.5)	0	5	USEPA Method 29 By AAS

Remark: Below Detection Limit

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Job Booking No.: 100001601

Test Report No.: 201910230110

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Distri. Briatinaa, Ponjab, India Test Report Date: 31/10/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 23/10/2019
Time of Sampling : 11:45

Test Started on : 25/10/2019
Test Completed On : 30/10/2019

Purpose of monitaring : To Check the Pollution Load

Sampling Location : CCR Heater Sampling method : IS-1 1255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 68
Diameter of the stack(m) : 2.65
Sampling duration (min) : 40

Observations:

Flue Gas Temperature °C : 162
Ambient Air Temperature °C : 28
Flue Gas Velocity (m/s) : 8.38

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits r	ng/Nm³	Test Method	
			For Gas	For Liquid		
ſ	Particulate Matters (as PM)	1.92	5	50	IS-11255 (P-1)	
2	Oxides of Sulphur (as SOx)	10.1	50	850	IS-11255 (P-2)	
3	Oxides of Nitrogen (as NO _x)	46.7	250	350	IS-11255 (P-7)	
4	Carbon Monoxide (as CO)	18.3	100	150	IS-13270	
5	Nickel & Vanadjum (as Ni & V)" .	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS	

Remark: Nat Detected

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Job Booking No.: 100001603 Test Report No.: :201910230111 Test Report Date: 31/10/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 23/10/2019
Time of Sampling : 11:45

Test Started on : 24/10/2019

 Test Started an
 : 24/10/2019

 Test Completed On
 : 29/10/2019

Purpose of monitoring : To Check the Pollutian Load

Sampling Location : NHT

Sampling method : IS: 11255 (P-7)

Narmal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 50
Diameter of the stack(m) : 1.5
Sampling duration (min) : 31

Observations:

Flue Gas Temperature °C : 189

Ambient Air Temperature °C : 29

Flue Gas Velocity (m/s) : 11.76

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits	mg/Nm³	Test Method
				For Liquid	
1	Particulate Matters (as PM)	4.2	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	138.4	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	32.3	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	18.5	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Job Booking No.: 100001602

Test Report No. :201910230112

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Puniab, India

Test Report Date: 31/10/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

 Date of Sampling
 : 23/10/2019

 Time of Sampling
 : 12:30

 Test Started on
 : 25/10/2019

 Test Completed On
 : 30/10/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : CDU/VDU
Sampling method : IS:11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 85
Diameter of the stack(m) : 4.3
Sampling duration (min) : 37

Observations:

Flue Gas Temperature °C : 185
Ambient Air Temperature °C : 29
Flue Gas Velocity (m/s) : 9.39

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits mg/Nm ³		Test Method
			For Gas	For Liquid	
1	Particulate Matters (as PM)	3.18	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	50.4	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	12.7	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8.1	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt, Bhatinda, Puniab, India Job Booking No.: 100001604 Test Report No.: 201910240112 Test Report Date: 01/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 24/10/2019
Time of Sampling : 13:20
Test Started on : 26/10/2019

Test Started on : 26/10/2019
Test Completed On : 31/10/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : DHDT

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m): 75Diameter of the stack(m): 2.5Sampling duration (min): 32

Observations:

Flue Gas Temperature °C : 185

Ambient Air Temperature °C : 26

Flue Gas Velocity (m/s) : 10.42

Analysis Report

Sr. No.	Parameters	rarameters Results (mg/Nm³)		mg/Nm³	Test Method
		For Gas	For Liquid		
1	Particulate Matters (as PM)	1.92	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	7.61	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	18.9	250	350	IS-1) 255 (P-7)
4	Carbon Monoxide (as CO)	50.3	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	. 0	5	USEPA Method 29 By AAS

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Job Booking No.: 100001606 Test Report No.: 201910240110 Test Report Date: 01/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 24/10/2019 Time of Sampling : 11:45

Test Started on : 27/10/2019
Test Completed On : 31/10/2019

Purpose of monitaring : To Check the Pollution Load

Sampling Location : FCCU Regenerator
Sampling method : IS: 11255 (P-7)
Normal Operating Schedule : As per requirement

Type of Stack /Doct : Mild Steel

Stack height from Ground Level (m) : 42
Diameter of the Stack(m) : 2.0
Sampling Duration (min) : 35

Observations:

Flue Gas Temperature °C : 200
Ambient Air Temperature °C : 29
Flue Gas Velocity (m/s) : 11.17

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits	mg/Nm³	Test Method
			For Gas	for Liquid	
1	Particulate Matters (as PM)	13.8	5	50	IS-11255 (P-1)
2	Oxides of Suiphur (as SOx)	6.2	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	8.5	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	41.2	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

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Job Booking No.: 100001605

Test Report Date: 01/11/2019

Test Report No.: 201910240111

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TEST REPORT

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Sample Particulars: Nature of the sample : Stack Gas Emission

Date of Sampling : 24/10/2019 Time of Sampling : 11:00

Test Started on : 27/10/2019
Test Completed On : 31/10/2019

Purpose of Monitoring : To Check the Pollution Load

Sampling Location : FCCU Heater Sampling method : IS:11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 42
Diameter of the Stack(m) : 2.0
Sampling Duration (min) : 35

Observations:

Flue Gas Temperature °C : 212 Ambient Air Temperature °C : 27 Flue Gas Velocity (m/s) : 10.88

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits mg/Nm ³		Test Method	
			For Gas	For Liquid		
1	Particulate Matters (as PM)	1.6	5	50	IS-11255 (P-1)	
2	Oxides of Sulphur (as SOx)	8.3	50	850	IS-11255 (P-2)	
3	Oxides of Nitrogen (as NOx)	23,1	250	350	IS-11255 (P-7)	
4	Carbon Monoxide (as CO)	6.3	100	150	IS-13270	
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS	

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwondi Sabo 🔻

Distt. Bhotinda, Punjab, India

Job Booking No.: 100001610 Test Report No.: 201910250110 Test Report Date: 01/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling: 25/10/2019Time of Sompling: 13:10Test Storted on: 26/10/2019Test Completed On: 30/10/2019

Purpose of monitoring : To Check the Pollution Lood

Sampling Location ; DCU

Sampling method : IS-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65
Diameter of the stack(m) : 4.4
Sampling duration (min) : 34

Observations:

Flue Gas Temperature °C : 158
Ambient Air Temperature °C : 29
Flue Gas Velocity (m/s) : 10.0.

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits 1	mg/Nm³	Test Method
			For Gas	For Liquid	
1	Particulate Matters (as PM)	1.8	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SO _x)	6.9	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	71	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	21	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ~ 0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Toluka Taiwandi Sabo Distt. Bhatinda, Punjab, India Job Booking No.: 100001608 Test Report No.: 201910250111 Test Report Date: 01/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 25/10/2019
Time of Sampling : 11:15

Test Started on : 28/10/2019
Test Completed On : 31/10/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : SRU 524

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 100
Diameter of the stack(m) : 2,0
Sampling duration (min) : 27

Observations:

Flue Gas Temperature °C : 186
Ambient Air Temperature °C : 28
Flue Gas Velocity (m/s) : 13.17

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits mg/Nm ³	Test Method
1	Oxide of Nitrogen (as NOx)	38.5	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	17.2	100	IS-13270
3	Oxides of Sulphur (as SOx)	152.3	NA	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Job Booking No.: 100001609 Test Report No.: 201910250112 Test Report Date: 01/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 25/10/2019 Time of Sampling : 12:10 Test Started on : 28/10/2019 Test Completed On :31/10/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : \$RU 525 Sampling method : IS: 11255 (P-7) Normal aperating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :100 Diameter of the stack(m) : 2.0 Sampling duration (min) : 29

Observations:

Flue Gas Temperature °C : 190 Ambient Air Temperature °C : 27 Flue Gas Velacity (m/s) : 12,45

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits mg/Nm³	Test Method
1	Oxide of Nitrogen (as NOx)	31.1	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	22,6	100	IS-13270
3	Oxides of Sulphur (as SOx)	146.5	NA	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: 100001607

Test Report No.: 201910260112

Test Report Date: 03/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 26/10/2019

Time of Sampling : 12:15

Test Started on : 28/10/2019
Test Completed On : 03/11/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location ; VGO Heater Sampling method ; IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65
Diameter of the stack(m) : 2.25
Sampling duration (min) : 37

Observations:

Flue Gas Temperature °C : 151

Ambient Air Temperature °C : 28

Flue Gas Velocity · (m/s) : 9.00

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits mg/Nm ³		Test Method	
			For Gas	For Liquid		
1	Particulate Matters (as PM)	2.9	5	50	IS-11255 (P-1)	
2	Oxides of Sulphur (as SOx)	6.7	50	850	IS-11255 (P-2)	
3	Oxides of Nitrogen (as NOx)	24.3	250	350	IS-11255 (P-7)	
4	Carbon Monoxide (as CO)	39.6	100	150	IS-13270	
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5}	0	5	USEPA Method 29 By AAS	

Remark: Not Detected

(AUTHORISED SIGNATORY)

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Job Booking No.: 100001613 Test Report No.: 201910290110 Test Report Date: 06/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

 Date of Sampling
 : 29/10/2019

 Time of Sampling
 : 12:20

 Test Started an
 : 31/10/2019

 Test Completed On
 : 05/11/2019

Purpose of monitoring : To Check the Pallution Load

Sampling Location : UB-3

Sompling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height fram Ground Level (m) : 100
Diameter af the stack(m) : 3.0
Sampling duration (min) : 25

Observations:

Flue Gas Temperature °C : 126 Ambient Air Temperature °C : 30 Flue Gas Velocity (m/s) : 13.0

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits	mg/Nm³	Test Method	
			For Gas	For Liquid		
1	Particulate Matters (as PM)	2.93	5	50	IS-11255 (P-1)	
2	Oxides of Sulphur (as SOx)	5.9	50	850	IS-11255 (P-2)	
3	Oxides of Nitrogen (as NOx)	89.2	250	350	IS-11255 (P-7)	
4	Carbon Monoxide (as CO)	1.1	100	150	IS-13270	
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS	

Remark: Not Detected

(AUTHORISED SIGNATORY)

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NITYA LABORATORIES

43, Sector-1A, Ext. Bhalla Enclave Channi Himmat- 180015, Jammii (J&K)

¥91-191-2465597

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Job Booking No.: 100001614 Test Report No.: 201910290111 Test Report Date: 06/11/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 29/10/2019

Time of Sampling ; 10:40

Test Started on :31/10/2019
Test Completed On :05/11/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HRSG-I

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 35
Diameter of the stack(m) : 2.0
Sampling duration (min) : 40

Observations:

Flue Gas Temperature °C : 155 Ambient Air Temperature °C : 29 Flue Gas Velocity (m/s) : 7.89

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits	mg/Nm³	Test Method
			For Gas	For Liquid	
1	Parliculate Matters (as PM)	1.29	5	50	IS-11255 (P-1)
2	Oxides af Sulphur (as SO _X)	3.6	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	171	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	7.9	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Job Booking No.: 100001615

Test Report Date: 06/11/2019

Test Report No.: 201910290112

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatindo, Punjob, Indio

Sample Particulars: : Stack Gas Emission

Noture of the sample : 29/10/2019 Date of Sampling Time of Sampling : 11:45

Test Started on :31/10/2019 Test Completed On :05/11/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HRSG-2

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : : Mild Steel

Stock height from Ground Level (m) :35 : 2.0 Diameter of the stack(m) Sampling duration (min) : 40

Observations:

Flue Gas Temperature °C :152 Ambient Air Temperature °C : 29 Flue Gas Velocity (m/s) : 8.28

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits mg/Nm³		Test Method
			For Gas	For Liquid	
1	Particulate Matters (as PM)	0.81	5	50	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	3,5	50	850	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	139.3	250	350	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8.3	100	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ- 0.5)	0	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Job Booking No.: NL/100001578-1588

Test Report Date: 07/11/2019

Sample Particulars:

Nature of the Sample & No. of Samples

Sample Quantity & Packaging

Test Started on **Test Completed**

Method of Sampling Date of Sampling

Sampling Conducted By

: Ground Water & Eleven Samples

: 2.0 Liter, Pet Bottle

:01/11/2019 :06/11/2019

: SOP/B/D-3

:31/10/2019

: Mr. Manmohan Singh

Analysis Report

Parameter	рН	Odour	Color	Taste	Temper ature	Turbidity	TDS	Alkalinity as (CaCO ₃)
GW1	7.82	Agreable	<5	Agreable	27.6	<1	602	224
GW2	7.66	Agreable	<5	Agreable	27.3	<1	724	248
GW3	7.22	Agreable	<5	Agreable	28.1	<1	620	218
GW4	7.67	Agreable	<5	Agreable	27.9	<1	708	232
GW5	7.96	Agreable	<5	Agreable	27.5	<1	612	214
GW6	7.67	Agreable	<5	Agreable	28.2	<1	692	220
GW7	7.49	Agreable	<5	Agreable	27.8	<1	588	192
GW8	7.61	Agreable	<5	Agreable	27.4	<1	590	198
GW9	7.68	Agreable	<5	Agreable	27.2	<1	670	24
GW10	7.72	Agreable	<5	Agreable	27.8	<1	560	228
GWII	7.86	Agreable	<5	Agreable	28.2	<1	640	256
Requirement	6.5-8.5	Agreeable	5	Agreeable	-	1	500	200
as per IS 10500	6.5-8.5	Agreeable	15	Agreeable	· · · · · · · · · · · · · · · · · · ·	5	2000	600
Protocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	1S:3025 (P-9)	APHA 23rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)

Remark:

GW1; Near Slorm Water Pond-South East Side, GW2: Near Slorm Water Pond - North East Side, GW3: Near Ecological Pand West Side, GW4; Near Ecological Pond South East Side GWS: Near Solar Pond South East Side- East Side of Water Block Area, GWS: 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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Job Booking No.: NL/100001578-1588

Test Report Date: 07/11/2019

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Puniab, India

Analysis Report

Parameter !	Total Hardness as (CaCO ₃)	Chloride \$	Flyorides	Calcium as Ca	Magnesiu m as Mg	Sulphate	Nitrates	Phenolic Compoun ds
GW1	252	224.6	0.84	44.88	34.03	114.3	14.3	BDL
GW2	264	252.9	0.89	41.68	38.89	102.5	12.6	BDL
GW3	256.	188.9	0.72	46.49	34.03	116.4	10.6	BDL
GW4	220	236.8	0.86	49.69	25.28	112.9	12.9	BDL
GW5	212	202.8	0,79	51,30	20.42	104.6	14.8	BDL
GW6	236	168.9	0.72	40.08	33.06	118.4	10,5	BDL
GW7	256	202.9	0.81	46.49	37.92	106.9	11.9	8DL
GW8	216	186.8	0.74	44,88	25.28	110,9	13.6	BDL
GW9	322	156.2	0.92	48.09	49.10	118.8	13.9	BDL
GW10	368	196.9	0.76	51.30	58.34	120.2	15.8	BDL
GW11	268	156,9	0,85	41.68	39.86	115.8	14.6	8DL
Requireme nt as per	200	250	1.0	75	30	200	45	0.001
15:10500	600	1000	1.5	200	100	400	No Relaxation	0.002
Protocol	IS: 3025 (P-21)	IS:3025 (P-21)	APHA 23 rd Ed.	15:3025 (P-40)	IS:3025 (P-46)	APHA 23 rd Ed.	IS:3025 (P-34)	IS:3025 (P-43)

Remark:

GW1; Near Starm Water Pand-South East Side, GW2; Near Starm Water Pand - North East Side, GW3; Near Ecological Pand West Side, GW4; Near Ecological Pand South East Side GW5: 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: Neor ETP South Side, BDL-LQQ-0.001-Phenolic Compound

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Job Booking No.: NL/100001578-1588

Test Report Date: 07/11/2019

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phuliokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Punjab, India

Analysis Report

Parameter	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)	Lead (as Pb)	Boron (as B)
GW1	0.32	BDL	1.5	BDL	BDL	BDL	BDL	0.31
GW2	0.3	BDL	0.81	BDL	BDL	BDL	BDL	0.32
GW3	0.28	BDL	BDL	BDL	BDL	BDL	BDL	0.34
GW4	0.24	BDL	BDL	BDL	BDL	BDL	BDL	0.33
GW5	0.29	BDL	BDL	BDL	BDL	BDL	BDL	0.39
GW6	0.25	BDL	BDL	BDL	BDL	8DL	BDL	0.45
GW7	0.28	BDL	BDL	BDL	BDL	BDL	BDL	0.34
GW8	0.26	BDL	BDL	BDL	BDL	BDL	BDL	0.47
GW9	0,29	BDL	BDL	BDL	BDL	BDL	BDL	0.38
GW10	0.36	BDL	BDL	BDL	BDL	BDL	BDL	0.42
GWII	0.32	BDL	BDL	BDL	BDL	BDL	BDL	0.33
Requireme	1	0.001	5	0.003	0.05	0.01	0.01	0.5
nt as per 15:10500	No Refaxation	No Relaxation	15	No Relaxation	No Relaxation	0.05	No Relaxation	1.0
Protocol	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed

GW1: Near Storm Water Pand-South East Side, GW2: Near Storm Water Pand - North East Side, GW3: Near Ecological Pand West Side, GW4: Near Ecological Pand South East Side GWS: Near Solar Pond South East Side. East Side of Water Block Area, GW6: Near Solar Pond South East Side of Water Block Area, GW7: Near RO/DM Plant East Side Area GW8: Near Secured Landfill Area South Side, GW9: BDL-LOQ-0.003-Cadmium, BDL-LOQ-0.05-Chromium, BDL-LOQ-0.01-Arsenic, BDL-LOQ-0.01-Arsenic, BDL-LOQ-0.01-Lead

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Job Booking No.: NL/100001578-1588

Test Report Date: 07/11/2019

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phuliokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Analysis Report

Parameter	Cyanide (as CN*)	Selenium (as Se*)	RFC	Polycyclic Aromatic Hydrocarbon s (PAH*)	Mineral Oil*	Anionic Detergent	Aluminiu m (as Al)	Total Coliform
GWI	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BDL	BDL	BDL	BDL.	BDL	BDL	BDL	Absent
GW4	BDL	8DL	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	BDL	BDL	BDL	BDL	BDL	BDI.	Absent
GW7	BDL	BDL	BDL	BDL	BDL	BDŁ	BDL	Absent
GW8	BDL	8DL	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	BDL ·	BDL	BDL	BDL	BDL	BDL	Absent
GW11	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
Requireme nt as per	0.05	0.01	0.2	0.0001	0,5	0.2	0.03	Absent
IS:10500	No	No	1.0	No	No	1.0	0.2	Absent
Protocol	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	IS: 1622

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 Side GW5: Near Solar Pand South East Side: East Side: East Side: Of Water Block Area, GW6: Near Solar Pand South East Side: North East Side of Water Block Area, GW7: Near RO/OM 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, BDL-LOQ-0.05-Cyanide, BDL-LOQ-0.01-Selenium, BDL-LOQ-0.2-RFC, BDL-LOQ-0.0001-PAH, BDL-LOQ-0.5-Mineral Oil, BDL-LOQ-0.2-Anioinic Detergent, BDL-LOQ-0.03-Aluminum

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Job Booking No.: NL/100001596

Test Report Date: 07/11/2019

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TatukaTatwandi Sabo

Distt.Bhatinda, Punjab, India

Sample Particulars:

Nature of the Sample

Date of Monitoring

Purpose of Monitoring

Place of Monitoring

Monitoring Conducted By

Protocol Used

: Volatile Organic Carbon

:31/10/2019

: To Check the Pollution Load

: HMEL Refinery

: Mr. Animesh Jha

: IS: 5182(Part-11)

Analysis Report

Sr. No.	Locations	Test Results (PPM)
1	Near ETP	0.23
2	Near Rail Gantry	BDL[LOQ-0.1]
3	Near Road Gantry	BDL[LOQ-0,1]
4	Battery limits of CDU/VDU	BDL[LOQ-0.1]
5	Battery limits of FCCU	BDL[LOQ-0.1]
6	Battery limits of DHDT	BDL[LOQ-0.1]
7	Battery limits of VGO-HDT	BDL(LOQ-0.1)
8	Battery limits of MS Block	BDL[LOQ-0.1]
9	Battery limits of DCU	BDL[LOQ-0.1]
10	Product Intermediate Storage Tanks Down Wind Direction	BDL[LOQ-0.1]
11	Product Intermediate Storage Tank UP Wind Direction	BDL[LOQ-0.1]
12	Near HPCL Product Dispatch Pumps	0.25
13	Battery limits of PPU	BD1[LOQ-0.1]
14	Near Crude Oil storage Tanks	. 0.27
15	Battery Limits of SRU Block	BDL[LOQ-0.1]
		Assa

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo Distt.Bhatinda, Punjab, India

Job Booking No.: NL/100001589 Test Report Date: 07/11/2019

Sample Particulars:

Nature of the Sample : ETP Outlet

Sample Quantity & Packaging : 2.0 Liter, Pet Bottle

Test Started an :01/11/2019 Test Completed :06/11/2019 Method of Sampling : SOP/B/D-3 Date of Sampling :31/10/2019

Sampling Conducted By : Mr. Manmohan Singh

Place of Sampling : W-1: ETP Outlet, Inside GGSR

Test Result

Sr. No.	Parameter	Unit	Result	Permissible	Protocol
			W-1	Limits	
1	На	***	7.64	6,0-8.5	IS-3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	4.5	20.0	IS-3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	82.2	125.0	IS-3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days) (BOD)	mg/L	12	15.0	IS-3025 (P-44)
5	Oil & Grease (O&G)	mg/L	8DL	5.0	IS-3025 (P-39)
6	Phenolic Compounds(C6H5OH)	mg/L	0.21	0.35	IS-3025 (P-43)
7	Sulphide (S)	mg/L	0.2	0.5	IS-3025 (P-29)
8	Ammonia(N)	mg/L	7.21	15.0	IS-3025 (P-34)
9	Total Kjeldahl Nitrogen (NH3)	mg/L	16.2	40	IS-3025 (P-34)
10	Phosphate	mg/L	0.76	3.0	IS-3025 (P-31)
11	Cyanide (CN')	mg/L	BDL	. 0.20	APHA-23 rd Ed.
12	Total Chromium	mg/L	BDL	2.0	IS-3025 (P-52)
13	Chromium Hexavalent (Cr+6)	mg/L	BDL	0.1	IS-3025 (P-52)
14	Copper (Cu)	mg/L	BDL	1,0	APHA -23rd Ed.
15	Lead (Pb)	mg/L	BDL	0.1	APHA-23rd Ed.
16	Mercury (Hg)	mg/L	BDL	0.01	APHA-23 rd Ed.
17	Zinc (Zn)	mg/L	8DL	5.0	APHA-23™ Ed.
18	Nickel (Ni)	mg/L	BDL	1.0	APHA-23rd Ed.
19	Vanadium (V')	mg/L	BDL	0.2	APHA-23 rd Ed.
20	Benzene*	mg/L	BDL	0.10	APHA-23rd Ed.
21	Benzo (a)-Pyreen*	mg/L	8DL	0,2	APHA-23rd Ed.

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(RAVINDER MITTAL)

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo Distt.Bhatinda, Punjab, India

Job Booking No.: NL/100001590 Test Report Date: 07/11/2019

Sample Particulars:

Nature of the Sample : STP Outlet Refinery Sample Quantity & Packaging : 2.0 Liter, Pet Bottle

Test Started on :01/11/2019 Test Completed :06/11/2019 Method of Sampling : SOP/B/D-3 Date of Sampling : 31/10/2019

Sampling Conducted By : Mr. Manmohan Singh

: W-2: STP Outlet, Inside GGSR Place of Sampling

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
			W2	1	
1	pH	- 1	7.42	6.5 to 9.0	IS-3025 (P-11)
2	Temperature	oC.	29.6	-	IS-3025 (P-9)
3	TSS	mg/l	8	≤10mg/l	IS-3025 (P-17)
4	COD	mg/l	47	≤50mg/l	IS-3025 (P-58)
5	BOD	mg/l	8	≤10mg/l	IS-3025 (P-44)
6	O&G .	mg/l	ND	≤5mg/l	IS-3025 (P-39)
7	Ammonical Nitrogen as N	mg/l	2.09	≤5mg/l	IS:3025 (P-34)
8	N-total	mg/l	5.9	≤10mg/l	IS:3025 (P-34)
9	PO4-P	mg/l	0.46	≤2mg/l	IS:3025 (P-31)
10	Total coliform Count	MPN/100ml	98	≤230/100mg/l	IS: 1622

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Job Booking No.: NL/100001593

Test Report Date: 07/11/2019

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukoTalwandi Sabo Distt.Bhatinda, Punjab, India

Sample Particulars:

Nature of the Sample

Sample Quantity & Packaging

Test Started on Test Completed

Method of Sampling
Date of Sampling

Sampling Conducted By

Place of Sampling

: ETP Outlet

: 5.0 Liter, Pet Bottle

:01/11/2019

: SOP/B/D-3 : 31/10/2019

: Mr. Manmohan Singh

: W-5: ETP Outlet, Inside GGSR

Sr.	Parameters	Unit	Test Result	Protocol
No.			W5	
1	Bioassay Toxic Test	%	98 % survival of fish after 96 hours in 100 % effluent	IS:6582 (P-1)



(RAVINDER MITTAL)

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt, Bhatinda, Punjab, India

Ref. No.: NL/100001679,90,1701,12,23,34,45,56

Test Report Date: 11/12/2019

Sample Particulars

Nature of the Sample : Ambient Air Quality Monitoring

Sampling Location : Ambient Air Quality Monitoring Station (AAQMS)-1

Purpose of Monitoring : To Check the Pollutian Load

Method of Sampling : IS 5182 (Part 14)

Monitoring Conducted By : Mr. AnimeshJha

Sampling Duration (Hrs.) : 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Pe	arameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP), ng/m³	Lead (as Pb), µg/ m³
04/11/2019	9:30	1.07	4.520	BDL	BDL	BDŁ
08/11/2019	9:20	1.15	4.112	BDL	BDL	BDL
11/11/2019	9;40	1.11	3.812	BDL	BDL	BDL
15/11/2019	9:15	1.12	3.921	BDL	BDL	8DL
18/11/2019	9:35	1,14	4,321	BDL	BDL .	BDL
22/11/2019	9:30	1.36	3,998	BDL	BDL	BDL
25/11/2019	9:20	1.09	3.426	BDL	BDL	BDL
29/11/2019	9:40	1.15	4.011	BDL	BDL	BDL
National Ambient . Standards (2009)	Air Quali	y Monitoring	20	6	01	01
Test Method			AAS Method	AA\$ Method	IS:5182 (P-12)	IS:5182 (P-22)

Remark;

*NAAQS – Notional Ambient*Air Quality Standards; Schedule-VII. [Rule 3 (38)], [Port-II-sec.-3(i)] 16.11.2009, BDL-Below Detection Limit, Arsenic-BDL [LOQ-6.0] BAP-BDL [LOQ-6.0] BAP-BDL [LOQ-1.0], Lead-BDL [LOQ-1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Statton, N.A.-Not Applicable, Sample Analysed Within Three days after Receipt.

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Punjab, India

Ref. No.: NL/100001680,91,1702,13,24,35,46,57

Test Report Date: 11/12/2019

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method af Sampling

Monitoring Conducted By

Samplina Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-2

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter					
				Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP), ng/m³	Lead (as Pb), µg/ m³	
04/11/2019	10:00	1.18	4.426	BDL	BDL	BDL		
08/11/2019	09:50	1.12	3.826	BDL	BDL	BDL		
11/11/2019	10:10	1.13	3.422	BDL	8DL	BDL		
15/11/2019	09:45	1.12	4,527	BDL	BDL	BDL		
18/11/2019	10:05	1,03	3.968	BDL	BDL	BDL		
22/11/2019	10:00	1.09	3.976	BDL	BDL	BDL		
25/11/2019	9:50	1.14	4.436	BDL	BDL	8DL		
29/11/2019	10:10	1.12	4.529	BDL	BDL	BDL		
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01		
Test Method			AAS	AAS	IS:5182	IS:5182		
			Method	Method	(P-12)	(P-22)		

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^{*}NAAQS - Notional Ambient Air Quality Standards; Schedule-VII. (Rule 3 (3B)), (Port-II-sec.-3(f)] 16.11.2009, BDL-Below Detection Umit, Arsenic-BDL (LOQ- 6.0) BAP-BDL (LOQ-1.0].Lead-BDL (LOQ- 1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Statlon, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.



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Ref. No.: NL/100001681,92,1703,14,25,36,47,58

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Issued to: HPCL-Mittal Energy Limited

Nature of the Sample

Sampling Location Purpose of Monitoring

Method of Sampling Monitoring Conducted By

Sampling Duration (Hrs.)

Village Phullokhari, Taluko Talwandi Sabo Distt.Bhatinda, Puniab, India

Sample Particulars

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-3

Test Report Date: 11/12/2019

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	ng Time AFR for RDS (m3/min)		Parameter				
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP), ng/m³	Lead (as Pb), μg/ m³	
04/11/2019	10:30	1.12	4.229	BDL	BDL	BDL	
08/11/2019	10:20	1.16	4.516	BDL	8DL	BDL	
11/11/2019	10:40	1,14	4,289	BDL	BDL	BDL	
15/11/2019	10:15	1.12	3.828	BDL	BDL	BDL	
18/11/2019	10:35	1.16	4.919	BDL	BDL	BDL	
22/11/2019	10:30	1.20	4.326	BDL	8DL	BDL	
25/11/2019	10;20	1.15	3,998	BDL	BDL	BDL	
29/11/2019	10:40	1.18	4.529	BDL	BDL	BDL	
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method			AAS Method	AAS	!S:5182	JS:5182	
				Method	(P-12)	(P-22)	

Remark:

^{*}NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (38)], [Port-It-sec.-3(i)] 16.11.2009, 8DL-Below Defection Limit, Arsenic-8DL (LOQ- 6.0] 8AP-8DL [LOQ- 1.0]. Lead-BDL (LOQ- 1.D), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days offer Receipt.



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Issued to: HPC1-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Puniab, India

Ref. No.: NL/100001682,93,1704,15,26,37,48,59 Test Report Date: 11/12/2019

Sample Particulars

Nature of the Sample Sampling Location Purpose of Monitoring Method of Sampling Monitoring Conducted By

Samplina Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-4

: To Check the Pollution Load

: IS 5182 (Part 14) : Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Parameter			
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP), ng/m³	Lead (as Pb), µg/ m³	
04/11/2019	11:00	1.09	4.126	BDL	BDL	BDL	
08/11/2019	10:50	1.18	3.815	BDL	BDL	BDL	
11/11/2019	11:10	1.11	4.142	BDL	8DL	BDL	
15/11/2019	10:45	1.14	4.024	BDL	BDL	BDL	
18/11/2019	11:05	1,20	4.326	BDL	BDL	BDL	
22/11/2019	11:00	1.16	4.314	8DL	BDL	BDL	
25/11/2019	10:50	1.12	3.867	BDL	BDL	BDL	
29/11/2019	11:10	1.10	3.668	BDL	BDL	BDL	
National Ambient / Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method			AAS Method	AAS	IS:5182	IS:518 2	
				Method	(P-12)	(P-22)	

*NAAQ\$ - National Ambient Air Quality Standards; Schedule-Vii, [Rule 3 (38]], [Part-It-sec.-3(i)] 16.11.2009, 8DL-Below Detection Limit, Americ-BDL [LOQ- 6.0] BAP-BDL [LOQ- 1.0], Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Somple Analysed within Three days

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Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Ref. No.: NL/100001683,94,1705,16,27,38,49,60

Test Repart Date: 11/12/2019

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-5

: Ta Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Sampling Time AFR for RDS (m3/min)			Par	ameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP), ng/m³	Lead (as Pb), µg/ m³
04/11/2019	11:30	1.20	3.926	BDL	BDL	BDL.
08/11/2019	11;20	1.16	4.264	BDL	8DL	BDL
11/11/2019	11:40	1,15	4.668	BDL	BDL	8DL
15/11/2019	11:15	1.16	4,128	BDL	BDL	BDL
18/11/2019	11:35	1.18	3.928	8DL	BDL	BDL
22/11/2019	11:30	1.14	3.998	BDL	BDL	BDL
25/11/2019	11:20	1,19	4.316	BDL	BDL	BDL
29/11/2019	11:40	1.15	4.556	BDL	BDL	BDL
National Ambient / Standards (2009)	Air Quality	Monitoring	20	6	01	01
Test Method			AAS Method	AAS	15:5182	IS:5182
				Method	(P-12)	(P-22)

Remark:

*NAAQS – National Ambient Air Quality Standards; Schedule-VII. (Rule 3 (3B)), (Parl-II-sec.,-3(I)) 16.11.2009, BDL-Below Detection Limit, Arsenic-8DL [LOQ- 6.0] BAP-BDL (LOQ- 1.0) Lead-BDL (LOQ- 1.0), N.A,-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambien) Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed Within Three days after Receipt.

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+91-9013591021, +91-9013552273

labsnitya@gmail.com

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India Ref. No.: NL/100001684,85,95,96,1706,07,17,18,28,29,

39,40,50, 51,61,62 Test Report Date: 11/12/2019

Sample Particulars

Nature of the Sample Sampling Lacation Purpose of Monitoring Method of Sampling Monitoring Conducted By Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Manitoring Station (AAQMS)-6

: To Check the Pollution Load

: IS 5182 (Port 14)

: Mr. AnimeshJho

: 24 Hrs.

Analysis Report

Date of	ĭime	AFR for RDS		<u> </u>			Parameter	г		þ.	
Sampling		(m3/min)	Ni ng/m³	As ng/m³	BAP,	Pb μg/ m³	PM _{2.5} μg/m ³	PM ₁₀ μg/m ³	SO₂ µg/m³	NO₂ µg/m³	CO mg/m³
04/11/2019	12:00	1.16	3.998	BDL	BDL	BDL	64.2	118.6	28.6	42.6	0.676
08/11/2019	11:50	1.18	3.717	BDL	BDL	BDL	65.8	122.8	30.4	39.	0.669
11/11/2019	12:10	1.16	3.842	BDL	BDL	BDL	63,4	122.6	26.5	38.2	0.898
15/11/2019	11:45	1.12	4.467	BDL	BDL	BDL	8.66	122.8	32.4	40.8	0.699
18/11/2019	12:05	1.15	4.768	BDL	BDL	BDL	63.6	122.4	26.6	42.8	0.698
22/11/2019	12:00	1.12	4,546	BDL	8DL	BDL	64.2	122.8	26.5	39.6	0.668
25/11/2019	11:50	1.14	4.597	BDL	BDL,	8DL	63.4	120.6	32.4	36.6	0.652
29/11/2019	12:10	1.18	4.398	BDL	BDL	BDL	67.6	116.4	28.6	40.6	0.614
rlional Ami		•	20	6	01	01	60	100	80	80	04
Test Method			AAS	AAS	IS:5182	IS:5182	IS:5182	IS:5182	IS:5182	NDIR	15:5182
			Method	Method	(P-12)	(P-22)	(P-23)	(P-2)	(P-6)	Method	(P-23)

Remark:

*NAAQS – National Ambient Air Quality Standards; Schedule-VII, (Rute 3 [38]), (Part-II-sec.-3(|)) 16.11.2009, BDL-Below Detection Limit, Assenic-BDL (LOQ- 6.0] BAP-BDL (LOQ- 1.0] Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AFR-Average flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

(AUTHORISED SIGNATORY)

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Q 43, Sector-1A, Ext. Bhalla Enclave Channi Himmat- 180015, Janimu (J&K)

P +91-191-2465597

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo

Distt.Bhatindo, Punjab, India

Ref. No.: NL/100001783

Test Report Date: 11/12/2019

Sample Particulars:

Nature of the Sample

Date of Monitoring Purpose of Monitoring

Place of Manitoring Monitoring Conducted By

Protocol Used

: Ambient Noise

: 30/11/2019

: To Check the Pallution Load

; HMEL Refinery

: Mr.AnimeshJho

: IS:9989

Analysis Report

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
Permissib	le Limit in *dB(A) Leq For Industrial Area	75 dB(A)	70 dB(A)
1	Near Refinery Main Gate	71.2	63,8
2	Near Fire Water Reservoir	67.6	64.9
3	Near Road Crude Oil Tanks	73.9	64.2
4	Near ETP and Flare	71.2	63.6
5	Near Storm Water Pond East Side	72.8	62.2
6	Near Sulphur Yard South East Side	72.1	65.4
7	Near Rail Loading Dispatch South East Side	72.9	66.2
8	Near CPP North East Side	72.2	63.1
9	Near Poly Propylene Dispatch Area	73.3	64.6
10	Near Ecological Pond Area	71.2	. 63.2

dB (A) Lea 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	Limits dB (A) Leq			
·		Day Time (6AM – 10PM)	Night Time (10PM – 06AM)		
Α	Industrial Area	75	70		
8	Commercial Area	65	55		
С	Residential Area	55	45		
D	Silence Zone	50	40		

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

N www.nityalab.com



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Q 43, Sector-A1 Ext., Bhalla Enclave, Channi Himniat, Jammu-180 015, J&K (UT), India

3+91-191-2465597

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100001787 Test Report Date: 24/11/2019

Sample Particulars:

Noture of the sample : Stack Gas Emission

Date of Sampling : 18/11/2019

Time of Sampling : 13:10

Test Started on : 19/11/2019 Test Completed On : 23/11/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : SRU 524 Sampling method : IS11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :100 Diameter of the Stack(m) : 2.0 Sampling duration (min) : 30

Observations:

Flue Gas Temperature °C : 179 Ambient Air Temperature °C :24 Flue Gas Velocity (m/s) : 13.14

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Limits mg/Nm³	Test Method
1	Oxide of Nitrogen (as NOx)	mg/Nm³	45.87	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	mg/Nm³	20.76	100	IS-13270
3	Oxides of Sulphur as SOx	mg/Nm³	152.39	NA	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	mg/Nm³	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: 8DL-Below Detection Limit

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt, Bhatinda, Punjab, India

Job Booking No.: NL/100001788 Test Report Date: 24/11/2019

Sample Parliculars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 18/11/2019 Time of Sampling : 14:15

 Test Started on
 : 19/11/2019

 Test Completed On
 : 23/11/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : SRU 525 Sampling method : IS11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 100
Diameter of the Stack(m) : 2.0
Sampling duration (min) : 30

Observations:

Flue Gas Temperature °C : 175
Ambient Air Temperature °C : 26
Flue Gas Velocity (m/s) : 12.88

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Limits mg/Nm³	Test Method
1	Oxide of Nitrogen (as NO _x)	mg/Nm³	39.87	250	IS:11255(P-7)
2	Carbon Monoxide (as CO)	mg/Nm³	23,17	100	IS:13270
3	Oxides of Sulphur as SOx	mg/Nm³	143,21	NA	IS:11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	mg/Nm³	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: BDL-Below Detection Limit

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F +91-129-2241021

+91-9013S91021, +91-9013S52273

labsnitya@gmail.com

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43, Sector-1A, Ext. Bhalla Enclave Channi Himmat- 180015, Jammu (J&K)

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Ref. No.: NL/100001767-177 Test Report Date: 11/12/2019

Sample Particulars:

Nature of the Sample & No. of Samples

Sample Quantity & Packaging

Test Started on

Test Completed

Method of Sampling

Date of Sampling

Samplina Conducted By

: Ground Water & Eleven Samples

: 2.0 Liter, Pet Bottle

: 02/12/2019

: 10/12/2019

; SOP/B/D-3

: 29/11/2019

: Mr. Manmohan Sinah Analysis kepon

Para	ımeter	рH	Odour	Color	Taste	Temp eratur e	Turbidity	TDS	Alkalinit y as (CaCO ₃)	Total Hardness as (CaCO ₃)	Chlori des	Fluorides
-						Locat	lon					
G	W1	7.38	Agreable	<5	Agreable	30.2	<1	623	174	252	185.2	0.78
G	€W2	7.81	Agreable	<5	Agreable	30.1	<1	616	236	240	218.2	0.79
G	¥W3	7.32	Agreable	<5	Agreable	30.2	<1	539	208	244	145.6	0.68
G	GW4	7.59	Agreable	<5	Agreable	30.3	<1	618	224	258	223.6	0.84
(SW5	7.61	Agreable	<5	Agreable	30.4	<1	554	172	216	107.6	0.82
- 0	€W6	7.78	Agreable	<5	Agreable	30.1	<1	600	218	228	126.8	0.71
(GW7	7.68	Agreable	<5	Agreable	30.2	<1	484	190	226	157.4	0.86
(SW8	7.76	Agreable	<5	Agreable	30.3	<1	435	202	202	160.4	0.75
(SW9	7.62	Agreable	<5	Agreable	30.1	<1	524	1.58	298	148.6	0.86
G	W10	7.42	Agreable	<5	Agreable	30.4	<1	440	220	320	176.6	0.86
Ğ	WII	7.74	Agreable	<5	Agreable	30,1	<1	518	206	252	137.4	0.91
3	Desi	6,5-8.5	Agreeabl	5	Agreeabl	-	1	500	200	200	250	1.0
10	rable		e	ĺ	e							
50 0	Permi ssible	6.5-8.5	Agreeabl e	15	Agreeabl e	-	5	2000	600	600	1000	1.5
Pro	otocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	IS:3025 (P-21)	APHA 23™ 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 Side GW5: Near Solar Pond South 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 South Side, GW1: Near EIP South Side

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda. Puniab. India

Ref. No.: NL/100001767-177 Test Report Date: 11/12/2019

Sample Particulars:

Nature of the Sample & No. of Samples

Sample Quantity & Packaging

Test Started on Test Completed Method of Sampling Date of Sampling Sampling Conducted By : Ground Water & Eleven Samples

: 2.0 Liter, Pet Bottle

:02/12/2019 : 10/12/2019 : SOP/B/D-3 :29/11/2019

: Mr. Manmohan Singh Analysis kepon

Para	ımeter	рH	Odour	Color	Taste	Temp eratur e	Turbidity	TDS	Alkalinit y as (CaCO ₃)	Total Hardness as (CaCO ₃)	Chlori des	Fluorides
						Local	ion		•			
G	SW1	7.38	Agreable	<5	Agreable	30.2	<1	623	174	252	185.2	0.78
G	W2	7.81	Agreable	<5	Agreable	30.1	<1	616	236	240	218.2	0.79
G	SW3	7.32	Agreable	<5	Agreable	30.2	<1	539	208	244	145.6	0.68
G	SW4	7.59	Ágreable	<5	Agreable	30.3	<1	618	224	258	223.6	0.84
-	SW5	7.61	Agreable	<5	Agreable	30.4	<1	554	172	216	107.6	0.82
0	€W6	7.78	Agreable	<5	Agreable	30.1	<1	600	218	228	126.8	0.71
-	GW7	7,68	Agreable	<5	Agreable	30.2	<1	484	190	226	157,4	0.86
(SW8	7.76	Agreable	<5	Agreable	30.3	<1	435	202	202	160.4	0.75
(GW9	7.62	Agreable	<5	Agreable	30.1	<1	524	158	298	148.6	0.86
G	W10	7.42	Agreable	<5 ·	Agreable	30.4	<1	440	220	320	176.6	0.86
G	:W11	7.74	Agreable	<5	Agreable	30.1	<1	518	206	252	137.4	0.91
10	Desi rable	6.5-8.5	Agreeabl e	5	Agreeabl e	79	1	500	200	200	250	1.0
50 0	Permi ssible	6.5-8.5	Agreeabl e	15	Agreeabl e	,	5	2000	600	600	1000	1.5
Pro	otocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23 rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	IS:3025 (P-21)	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 Side GW5: Near Solar Pond South East Side Pond South East Side of Water Block Area, GW6: Near Solar Pond South East Side of Water Block Area, GW7: Near RO/DM Plant East Side AreaGW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area West Side, GW10: Secured Landfill Area South Side, GW11: Near P South Side

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Ref. No.: NL/100001767-1777

Test Report Date: 11/12/2019

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Tolwandi Sabo Distt.Bhatinda, Puniab, India

Analysis Report

Parameter	Calciu m as Ca	Magn eslum as Mg	Sulph ate	Nitrate s	Phenolic Compou nds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmiv m (as Cd)	Chromiu m (as Cr)	Arsenic (as As)
GW1	42.31	36,00	110.1	11.8	BDL	0.28	8DL	1.12	BDL	BDL	BDL
GW2	38.28	36.18	104.2	11.9	BDL	0.33	BDL	0.83	BDL.	BDL	BDL
GW3	42.16	31.12	103.2	9.9	BDL	0.32	BDL	BDL	8DL	BDL	BDL
GW4	35.86	38.42	101.4	12.8	BDL	0.24	BDL	BDL	BDL	BDL	BDL
GW5	38.29	25.16	104.2	12.4	8DL	0.25	BDL	BDL	BDL	BDL	BDL
GW6	46.08	23.42	110.2	11.2	BDL	0.26	BDL	BOL	8DL	BDL	BDL
GW7	48.26	6.78	101.2	12.9	BDL	0.31	8DL	BDL	BDL	BDL	BDL
GW8	40.98	25.48	98.2	12.8	BDL	0.27	BDL	BDL	BDL.	BDL	BDL
GW9	47.28	39.62	108.4	11.1	BDL	0.28	BDL	BDL	BDL	BDL	BDL
GW10	44.18	39.81	103.8	12.2	BDL	0.31	BDL	BDL	BDL	BDL	BDL
GW11	46.12	36.01	101.8	11,6	BOL	0.29	BDL	8DL	8DL	BDL	BDL
Requireme .t as per	75	30	200	45	0.001	1	0.001	5	0.003	0.05	0.01
IS:10500:20 12	200	100	400	No Relaxa tion	0.002	No Relax atlon	No Relaxati on	15	No Relaxatio n	No Relaxatio n	0.05
Protocol	15:302 5 (P- 40)	IS:302 5 (P- 46)	APHA 23 rd Ed.	IS:3025 (P-34)	15:3025 (P-43)	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.

GW); 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 Side GW5: 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 South Side, GW1: Near ETP South Side

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Distt. Bhatinda. Puniab. India

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

Village Phullokhari, Taluka Talwandi Sabo

TEST REPORT

NITYA LABORATORIES

9 43, Sector-1A, Ext. Bhalla Enclave Channi Himmat- 180015, Jammu (J&K)

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Ref. No.: NL/100001767-1777 Test Report Date: 11/12/2019

Analysis Report

Parameter	Lead (as Pb)	Boron (as B)	Cyani de* (as CN)	\$eleniu m* (as Se)	RFC	Polycyclic Aromotic Hydrocarb ons* (PAH)	Mineral Oil*	Anionic Detergent	Aluminum (as Al)	Total Collform
GW1	BDL	0.26	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW2	BDL	0.29	BDL	BDL	BOL	BDL	BDL	BDL	8DL	Absent
GW3	BDL	0.26	BDL	BDL	BDL	BDL	BDL	BDL.	BDL	Absent
GW4	BDL	0.28	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0,30	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0.35	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0.29	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW8	BDL	0.31	BDL	BDL	8DL	BOL	BDL	8DL	BDL.	Absent
GW9	BDL	0.26	BDL	· BDL	BOL	BDL	BDL	BDL	BOL	Absent
GW10	BDL	0.29	BDL	BDL BDL	BDL	BDL	BDL	BDL.	BDL	Absent
GW11	BDL	0.28	BDL	BDL	BDL	BDL	BDL	BD1.	BDL	Absent
Requireme	0.01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0.03	Absent
``:10500:20 12	No Relax ation	1.0	No	No	1.0	No	No	1.0	0.2	Absent
Protocol	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	IS: 1622

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 Side GW5: 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 AreaGW8; 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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(RAVINDER MITTAL)

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🗣 43, Sector-1A, Ext. Bhalla Enclave Channi Himmat- 180015, Jammu (J&K)

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Ref. No.: NL/100001785

Test Report Date: 11/12/2019

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

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Sample Particulars:

Nature of the Sample

Date of Monitoring Purpose of Monitoring

Place of Monitoring

Monitoring Conducted By

Protocol Used

: Volatile Organic Carbon

: 30/11/2019

: To Check the Pollution Load

: HMÉL Refinery : Mr. Animesh Jha

: Portable PID Based Gos Detector for VOC's - Honeywell RAE

Analysis Report

Sr. No.	Locations	Test Results (PPM)
1	Near ETP.	0.26
2	Near Rail Gantry	BDL
3	Near Road Gantry	BDL
4	Battery limits of CDU/VDU	BDL
5	Battery limits of FCCU	BDL
6	Battery limits of DHDT	BDL
7	Battery limits of VGO-HDT	BDL
8	Battery limits of MS Block	BDL
9	Battery limits of DCU	BDL
10	Product Intermediate Storage Tanks Down Wind Direction	BDL
11	Product Intermediate Storage Tank UP Wind Direction	BDL
12	Near HPCL Product Dispatch Pumps	0.22
13	Battery limits of PPU	BDL .
14	Near Crude Oil storage Tanks	0.27
15	Battery Limits of SRU Block	BÐL



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CORPORATE OFFICE & CENTRAL LABORATORY



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

Channi Himmat- 180015, Jammu (J&K)

NITYA LABORATORIES 9 43, Sector-1A, Ext. Bhalla Enclave

+91-191-2465597

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Issued to: HPCL-Mittai Energy Limited

Village Phullokhari, TalukaTalwandi Sabo Distt, Bhatinda, Punjab, India

Ref. No.: NL/100001778

Test Report Date: 11/12/2019

Sample Particulars:

Nature of the Sample : ETP Outlet

Sample Quantity & Packaging : 2.0 Liter, Pet Bottle

Test Started on :02/12/2019 Test Completed : 10/12/2019 Method of Sampling : SOP/B/D-3 Date of Sampling : 29/11/2019

Sampling Canducted By : Mr. Manmahan Singh

Place of Sampling : W-1: ETP Outlet, Inside GGSR

Test Result

TEST REPORT

Sr. No.	Parameter	Unit	Result	Permissible	Protocol
			W-1	Limits	
1	рН		7,31	6.0-8.5	IS-3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	18.22	20.0	IS-3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	82.4	125.0	IS-3025 (P-58)
4	Bio-Chemical Oxygen Demand (BOD)	mg/L	12	15.0	IS-3025 (P-44)
5	Oil & Grease (O&G)	mg/L	BDL	5.0	IS-3025 (P-39)
6	Phenolic Compounds(C6H5OH)	mg/L	0,22	0.35	IS-3025 (P-43)
7	Sulphide (S)	mg/L	0.18	0.5	IS-3025 (P-29)
8	Ammonia (N)	mg/L	6.86	15.0	IS-3025 (P-34)
9	Total Kjeldahl Nitrogen (NH3)	mg/L	16.4	40	IS-3025 (P-34)
10	Phosphate	mg/L	0.28	3.0	IS-3025 (P-31)
11	Cyanide* (CN)	mg/L	BDL	0.20	APHA-23rd Ed.
12	Total Chromium	mg/L	8DL	2.0	iS-3025 (P-52)
13	Chromium Hexavalent (Cr+6)	mg/L	BDL	0.1	IS-3025 (P-52)
14	Copper (Cu)	mg/L	BDL	1.0	APHA -23rd Ed.
15	Lead (Pb)	mg/L	BDL	0.1	APHA-23 rd Ed.
16	Mercury (Hg)	mg/L	BDL	0.01	APHA-23rd Ed.
17	Zinc (Zn)	mg/L	BDL	5.0	APHA-23 rd Ed.
18	Nickel (Ni)	mg/L	BDL	1.0	APHA-23 rd Ed.
19	Vanadium* (V)	mg/L	BDL	0.2	APHA-23 rd Ed.
20	Benzene*	mg/L	BDL	0.1	APHA-23rd Ed.
21	Benzo (a)-Pyreen*	mg/L	8DL	0.2	APHA-23 rd Ed.

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Ref. No.: NL/100001779

Test Report Date: 11/12/2019

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BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB **TEST REPORT**

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo

Distt. Bhatinda, Punjab, India

Sample Particulars:

Nature of the Sample : STP Outlet Refinery Sample Quantity & Packaging : 2.0 Liter, Pet Bottle

Test Started on : 02/12/2019 Test Completed : 10/12/2019 Method of Sampling : SOP/8/D-3 Date of Sampling : 29/11/2019

Sampling Conducted By : Mr. Manmohan Singh

Place of Samplina : W-2: STP Outlet Inside GGSR

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol
		ľ	W2	-1	
1	рН	-	7.39	6.5 to 9.0	IS-3025 (P-11)
2	Temperature	°C	32,1	-	IS-3025 (P-9)
3	TSS	mg/l	7.6	≤10mg/l	I\$-3025 (P-17)
4	COD	mg/l	38	≤50mg/l	IS-3025 (P-58)
5	BOD	mg/l	6	≤10mg/l	IS-3025 (P-44)
6	0 & G	mg/l	ND	≤5mg/l	IS-3025 (P-39)
7	Ammonical Nitrogen as N	mg/l	1.64	≤5mg/!	IS:3025 (P-34)
8	N-total	mg/l	4.22	≤10mg/l	IS:3025 (P-34)
9	PO4-P	mg/l	0.28	≤2mg/l	IS:3025 (P-31)
10	Total coliform Count	MPN/100ml	97	≤230/100mg/l	IS: 1622

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CORPORATE OFFICE & CENTRAL LABORATORY



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

TEST REPORT

MILYALABORATORIES

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+91-191-2465597

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo Distt.Bhatinda, Puniab, India

Ref. No.: NL/100001782

Test Report Date: 11/12/2019

Sample Particulars:

Nature of the Sample : ETP Outlet

Sample Quantity & Packaging : 5.0 Liter, Pet Bottle

Test Started on : 02/12/2019 **Test Completed** : 10/12/2019 Method of Sampling : SOP/B/D-3 Date of Sampling : 29/11/2019

Sampling Conducted By : Mr. Manmohan Singh

Place of Sampling : W-5: ETP Outlet, Inside GGSR

Sr. No. Parameters		Unit	Test Result	Protocol	
		·	W5		
1	Bioassay Toxic Test	%	97 % survival of fish after 96 hours in 100 % effluent	IS:6582 (P-1)	

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§ 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Binatinda, Punjab, India

Ref. No.: NL/100001804,33, 57,1938,92, 2062, 2092, 2103

Test Report Date: 06/01/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-1

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. Animesh Jha

: 24 Hrs,

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Parameter						
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP-), ng/m³	Lead (as Pb), µg/ m³				
02/12/2019	9:20	1.02	4.652	BDL	BDL	BDL				
06/12/2019	9:25	1.12	4.214	BDL	BDL	BDL				
09/12/2019	9:35	1,1	3.221	BDL	BDL	BDL				
13/12/2019	9:40	1.09	3.541	BDL	BDŁ	BDL				
16/12/2019	9:41	1,11	4.325	BDL	BOL	BDL				
20/12/2019	9;35	1.2	3.984	BDL	BDL	BDL				
23/12/2019	9:25	1.12	3.621	BDL	BDL	BDL				
27/12/2019	9:50	1.1	4.214	BDL	BDL	BDL				
National Ambient . Standards (2009)	Air Quall	ty Monitoring	20	6	01	01				
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)				

Remork

"NAAGS - National Ambient Air Quality Standards; Schedule-VII, (Rule 3 (38)), [Part-II-sec.-3(i)] 16.11.2007, BDL-Below Detection Limit, Assentc-BDL (LOQ- 6.0) BAP-BDL (LOQ- 1.0), Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

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

Distr.Bhatinda, Punjab, India

Ref. No.: NL/100001805, 34, 58,1939, 93, 2063,93, 2104

Test Report Date: 06/01/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-2

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. Animesh Jha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Parameter						
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP·), ng/m³	Lead (as Pb), µg/ m³				
02/12/2019	10:10	1.3	4.381	BDL	BDL	BDL				
06/12/2019	09:35	1.2	3,254	8DL	BDL	BDL				
09/12/2019	10:10	1.1	3.627	BDL	BDL	BDL				
13/12/2019	09:50	1.05	4.162	BDL	BDL	BDL				
16/12/2019	10:35	1.01	3.824	BDL	BDL	BDL				
20/12/2019	10:20	1.08	3.624	BDL	BDL	BDL				
23/12/2019	9:55	1,14	4.214	BDL	BDL	BDL				
27/12/2019	10:20	1.1	4.228	BDL	BDL	BDL				
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01				
Test Method			AAS	AAS	IS:5182	15:5182				
			Method	Method	(P-12)	(P-22)				

Remark:

*NAAQ\$ - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009, BDL-Below Detection Limit, Assenic-BDL [LQQ- 6.0] BAP-BDL (LQQ-1.0) Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Stalton, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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NITYA LABORATORIES

🗣 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jaminu-180 015, J&K (UT), India

+91-191-2465597

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.8hatinda. Puniab. India

Ref. No.: NL/100001806,35,59,1940,94,2083,94,2105

Test Report Date: 06/01/2020

Somple Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-3

: To Check the Pollution Load

; IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		1	Parameter	
			Nickel (as NI), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP), ng/m³	Lead (os Pb), µg/ m³
02/12/2019	10:40	1.16	4.214	BDL	BDL	BDL
06/12/2019	10:25	1.12	4.651	BDL	BDL	BDL
09/12/2019	10:50	1.15	4.287	BDL	BDL	BDL
13/12/2019	10:20	1.1	3.641	BDL	BDL	BDL
16/12/2019	10:45	1.21	4.914	BDL	BDL	BDL
20/12/2019	10:35	1,1	4.264	BDL	BDL	BDL
23/12/2019	10:25	1.21	3.348	BDL	BDL	BDL
27/12/2019	10:45	1.21	4.629	BDL	8DL	BDL
National Ambient / Standards (2009)	Alr Quality	Monitoring	20	6	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	I\$;5182 (P-22)

Remork:

*NAAQS - National Arablent Air Quality Standards; Schedule-Vil. (Rula 3 (38)), [Part-It-sec.-3(i)] 16.11.2007, 8DL-Balaw Detection Limit, Arsenic-8DL [LOQ- 6.0] 8AP-8DL [LOQ- 1.0], Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AFR-Average flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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(RAVINDER MITTAL)

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NITYA LABORATORIES NITYA LABORATORIES Q 43, Sector-A1 Ext., Bhalfa Enclave

9 43, Sector-A1 Ext., Bhalfa Enclave, Channi Himmat, Jammu-180 015, J&K (U1), India

+91-191-2465597

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phuliokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Ref. No.: NL/100001807,36, 60,1941,95, 2084,95,2106

Test Report Date: 06/01/2020

Sample Particulars

Noture of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted 8y

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-4

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter				
	-		Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP-), ng/m³	Lead (as Pb), µg/ m³	
02/12/2019	11:30	1.02	4.579	8DL	BDL	BDL	
06/12/2019	11:50	1.02	3.964	BDL	BDL	BDL	
09/12/2019	11:45	1.1	4.189	BDL	BDL	BDL	
13/12/2019	10:40	1.12	4.751	BDL	8DL	BDL	
16/12/2019	11:36	1,14	4,687	BDL	BDL	BDL	
20/12/2019	11:20	1.11	4.241	BDL	BDL	BDL	
23/12/2019	10:40	1.09	3.914	BDL	BDL	BDL	
27/12/2019	11;20	1.02	3,641	BDL	BDL	BDL	
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS;5182 (P-22)	

Remark:

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, (Rule 3 (38)), (Part-II-sec.-3(i)) 16,11,2009, BDL-Below Detection Limit, Arsenic-BDL (LOQ- 6.0) BAP-BDL (LOQ- 1.0), Lead-BDL (LOQ-1.0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Manitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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Ref. No.: NL/100001808,37,61,1942,96,2085,96,2107

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Test Report Date: 06/01/2020

Distt.Bhatinda, Puniab, India

Sample Particulars

Nature of the Sample Sompling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Amblent Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-5

; To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter				
		(mo, many	Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP*), ng/m³	Lead (as Pb), µg/ m³	
02/12/2019	11:50	1.12	3.628	BDL	BDL	BDL	
06/12/2019	11:50	1.08	4.348	BDL	BDL	8DL	
09/12/2019	11:30	1.02	4.154	BDL	BDL	BDL	
13/12/2019	11:45	1.21	4.168	BDL	BDL	BDL	
16/12/2019	11:40	1.09	3.297	BDL	8DL	8DL	
20/12/2019	11:35	1.11	3.614	BDL	BDL	BDL	
23/12/2019	11:25	1.12	4.335	BDL	BDL.	BDL	
27/12/2019	11:30	1.14	4.247	BDL	BD).	BDL	
National Ambient / Standards (2009)	Air Quality	Monitoring	20	6	01	01	
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)	

*NAAQS – National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (38)], [Part-It-sec.-3(1)] 16.11.2009, BDL-8elow Defection Limit, Arsenic-BDL [LOQ- 6,0] BAP-BOL [LOQ- 1.0], Lead-BDL [LOQ- 1.0], N.A.-Not Applicable, AFR-Average flow Rale, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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Remark



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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Disti.Bhatinda, Punjab, India

2086,87,97,98,2108,09 Test Report Date: 06/01/2020

Sample Particulars

Nature of the Sample Sampling Location

Purpose of Monitoring Method of Sampling Monitaring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-6

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. Animesh Jha

; 24 Hrs.

Analysis Report

Date of	Time	AFR for RDS					Parameter				
Sampling	3	(m3/min)	Ni ng/m³	As ng/m³	BAP ₁ , ng/m³	Pb µg/ m³	PM _{2,5} μg/m ³	PM ₁₀ µg/m³	SO₂ µg/m³	NO₂ μg/m³	CO- mg/m ³
02/12/2019	12:20	1.09	3.681	BDL	BDL	BDL	66.4	96.3	19.4	46.5	0.451
06/12/2019	11:55	1.12	3.662	BDL	8DL	BDL	68.9	91.4	15.4	42.6	0.652
09/12/2019	12;30	1,06	3.941	BDL	BDL	BDL	62.6	93.2	13.2	44.6	0.694
13/12/2019	11;50	1.2	4.541	BDL	BDL	BDL	62.8	91.0	16.7	41.7	0.561
16/12/2019	12:20	1.1	4.624	BDL	BDL	BDL	66.3	92.4	17.3	43.1	0.634
20/12/2019	12:30	1.02	4.669	BDL	8DL	BDL	62.6	90.1	17.6	36.5	0.784
23/12/2019	11:55	1.04	4.27B	BDL	BDL	BDL	66.4	92.2	19.8	32.4	0.624
27/12/2019	12:20	1,12	4,694	BDL	BDL	BDL	62.6	95.5	17.6	38.6	0.662
National Ami Monitoring St		•	20	6	01	01	60	100	80	80	04
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	I\$;5182 (P-22)	Gravim etric	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	NDIR Method

Remark:

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhori, TalukaTalwandi Sabo Disti,Bhatinda, Punjab, India Ref. No.: NL/100002131 Test Report Date: 06/01/2020

Sample Particulars:

Nature of the Sample Date of Monitoring

Purpose of Monitoring

Place of Monitoring Monitoring Conducted By

Protocol Used

: Ambient Noise

: 30/12/2019

: To Check the Pollution Load

: HMEL Refinery : Mr. Animesh Jha

: IS: 9989

Analysis Report

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
Permissib	le Limit in *dB(A) Leq For Industrial Area	75 dB(A)	70 dB(A)
1	Near Refinery Main Gate	73,5	64.2
2	Near Fire Water Reservoir	65.2	66.7
3	Near RoadCrude Oil Tanks	74.1	62,1
4	Near ETP and Flare	72.5	64.1
5	Near Storm Water Pond East Side	71.6	63.9
6	Near Sulphur Yard South East Side	74,3	66,8
7	Near Rail Loading Dispatch South East Side	71.1	61.8
8	Near CPP North East Side	74.1	64.1
9	Near Poly PropyleneDispatch Area	72.1	62.5
10	Near Ecological Pond Area	70.3	64.7

^{*}dB (A) Lea 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	Limits dB (A) Leq			
·		Day Time (6AM – 10PM)	Night Time (10PM – 06AM)		
A	Industrial Area	75	70		
В	Commercial Area	65	55		
С	Residential Area	55	45		
D	Silence Zone	50	40		

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, Iridia Job Booking No.: 100002161 Test Report No.: 201912200111 Test Report Date: 28/12/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 20/12/2019
Time of Sampling : 11:40
Test Started on : 23/12/2019

 Test Started on
 : 23/12/2019

 Test Campleted On
 : 27/12/2019

Purpose of monitaring : To Check the Pollutian Load

Sampling Lacation : SRU 525 Sampling method : IS: 11255 (P-7)

Normal aperating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m): 100Diameter of the stack(m): 2.0Sampling duration (min): 28

Observations:

Flue Gas Temperature °C : 182 Ambient Air Temperature °C : 16 Flue Gas Velocity (m/s) : 12.487

Analysis Report

Sr. No.	Parameters	Results (mg/i/lm³)	Limits 100 % Fuel Gas (mg/Nm³)	Test Method	
1	Oxide of Nitrogen (as NOx)	34.3	250	IS-I 1255(P-7)	
2	Carbon Monoxide (as CO)	23.6	100	IS-13270	
3	Oxides of Sulphur (as SOx)	149.9	NA	IS-1 1255 (P-2)	
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:1 I255 (P-4)	

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taíuka Talwandı Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: 100002160 Test Report No.: 201912200110 Test Report Date: 28/12/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

: 20/12/2019 Date of Sampling Time of Sampling : 10:30

Test Started on : 23/12/2019 Test Completed On : 27/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : SRU 524 Sampling method : IS: 11255 (P-7) . Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :100 Diameter of the stack(m) : 2.0 Sampling duration (min) :28

Observations:

Flue Gas Temperature °C : 180 Ambient Air Temperature °C :15 : 12.80 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (rng/Nm³)	100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NOx)	40.6	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	18.9	100	IS-13270
3	Oxides of Sulphur (as SO _X)	149.2	N.A.	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Delected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100002167 Test Report No.: 201912210112 Test Report Date: 28/12/2019

Sample Particulars:

Date of Sampling : 21/12/2019
Time of Sampling : 10:45
Test Started on : 22/12/2019
Test Completed On : 27/12/2019

Purpose of monitoring : To Check the Pollution Laga

Sampling Location : CDU/VDU
Sampling method : IS: 11255 (P-7)
Narmal aperating schedule : As per requirement

Type of stack /duct : Mild Steet

Stack height fram Ground Levei (m): 85Diameter of the stack(m): 4,3Sampling duration (min): 34

Observations:

Flue Gas Temperature °C : 156
Ambient Air Temperature °C : 17
Flue Gas Velacity (m/s) : 9.90

Analysis Report

Sr. No.	Parameters	Results (mg/Nm ³)	Mixed Limits (mg/Nm³)	Test Method
ĺ				
1	Particulate Matters (as PM)	3.98 ·	40	IS-11255 (P-1)
2	Oxides of Suiphur (as \$Ox)	54.3	659	IS-11255 (P-2)
3	Oxides of Nitragen (as NOx)	13.1	326	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8.7	138	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Datected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatindo, Punjob, Indio

Job Booking No.: NL/100002166 Tesi Report No.: 201912210112 Test Report Date: 28/12/2019

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 21/12/2019 Time of Sampling : 13:40

Test Started on : 23/12/2019 Test Completed On : 29/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : Nophtha Heater Sampling method : IS-11255 (P-7) Normal operating schedule : As per requirement

: Mild Steel

Type of stack /duct

Stack height from Ground Level (m) : 30 Diameter of the stack(m) : 1.2 Sompling duration (min) : 37

Observations:

Flue Gas Temperature °C : 192 Ambient Air Temperature °C :16 Flue Gos Velocity (m/s) :10.12

Analysis Report

Sr. No.	Parameters	Results (mg/Nro³)	Mixed Limits mg/Nm³	Test Method
1	Particulate Matters (as PM)	1.9	41	IS-11255 (P-1)
2	Oxides of Sulphur (as SO _x)	8.9	679	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	20.6	329	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	35.4	139	IS-13270
5	Nickel & Vanadiurn (as Ni & V)*	BDL(LOQ-0,5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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TEST REPORT

issued to: HPCL-Mittal Energy timited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda. Punjab, India

Job Booking No.: NL/100002162 Test Repart No. : 201912210110 Test Report Date: 28/12/2019

Sample Particulars:

Nature of the sample : Stack Gas Ernission

Dale of Sampling : 21/12/2019
Time of Sampling : 11:50

 Test Started on
 : 22/12/2019

 Test Completed On
 : 27/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HGU-1

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 70
Diameter of the stack (m) : 2,6
Sampling duration (min) : 29

Observations:

Flue Gas Temperature °C ; 172 Ambient Air Temperature °C ; 15 Flue Gas Velocity (m/s) ; 11.91

Analysis Report

Sr. No.	Parameters	Results (rrsg/Nm³)	Mixed Limits mg/Nm³	Test Method
1	Particulate Matters (as PM)	4,01	42 .	IS-11255 (P-1)
2	Oxides of Sulphur (as \$Ox)	7.8	593	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	95.21	330	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8,8	140	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Below Detection Limit

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TESY REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100002166 Test Report No. : 201912210111

Test Report Date: 28/12/2019

Nature of the sample : Stack Gas Emission

Date of Sampling : 21/12/2019 Time of Sampling : 12:25 Test Started on : 22/12/2019 Test Completed On : 27/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HGU-2 Sampling method : IS-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :70 Diameter of the stack(m) : 2.6 Sampling duration (min) :28

Observations:

Flue Gas Temperature °C : 175 Ambient Air Temperature °C :16 Flue Gas Velocity (m/s) :9.3

Analysis Report

Parameters	Results (mg/Nm³)	Mixed Limits mg/Nm ³	Yest Method
Particulate Matters (as PM)	1.62	38	IS-11255 (P-1)
Oxides of Sulphur (as SOx)	8.2	636	IS-11255 (P-2)
Oxides of Nitrogen (as NO _x)	93.27	323	IS-11255 (P-7)
Carbon Monoxide (as CO)	9.8	137	IS-13270
Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS
	Particulate Matters (as PM) Oxides of Sulphur (as SO _x) Oxides of Nitrogen (as NO _x) Carbon Monoxide (as CO)	Particulate Matters (as PM) 1.62 Oxides of Sulphur (as SOx) 8.2 Oxides of Nitrogen (as NOx) 93.27 Carbon Monoxide (as CO) 9.8	(mg/Nm³)mg/Nm³Particulate Matters (as PM)1.6238Oxides of Sulphur (as SOx)8.2636Oxides of Nitrogen (as NOx)93.27323Carbon Monoxide (as CO)9.8137

Remark; Below Detection Limit

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+91-129-2241021

+91-9013591021, +91-9013552273

!absnitya@gmail.com



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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100002166 Test Report No.: 201912230110 Test Report Date: 01/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

 Date of Sampling
 : 23/12/2019

 Time of Sampling
 : 15:42

 Test Started on
 : 25/12/2019

 Test Completed On
 : 30/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location ; DCU

Sampling method : IS-11255 (P-7)

Normal operating schedule _ ; As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65
Diameter of the stack (m) : 3.14
Sampling duration (min) : 37

Observations:

Flue Gas Temperature °C : 154 Ambient Air Temperature °C : 17 Flue Gas Velocity (m/s) : 9.35

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits mg/Nm³	Test Method .		
1	Particulate Matters (as PM)	2.5	43	IS-11255 (P-1)		
2	Oxides of Sulphur (as SOx)	85,1	719	IS-11255 (P-2)		
3	Oxides of Nitrogen (as NOx)	72,4	334	IS-11255 (P-7)		
4	Carbon Monoxide (as CO)	29	142	IS-13270		
5	Nickel & Vanadiurn (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS		

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100002170 Test Report No. : 201912230111 Test Report Date: 01/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 23/12/2019
Time of Sampling : 10:10
Test Started on : 25/12/2019
Test Completed On : 30/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : VGO Heater
Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65
Diameter of the stack(m) : 2.25
Sampling duration (min) : 34

Observations:

Flue Gas Temperature °C : 152
Arnbient Air Temperature °C : 15
Flue Gas Velocity (m/s) : 9.93

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits (rng/Nm³)	Test Method		
1	Particulate Matters (as PM)	3.3	41	IS-11255 (P-1)		
2	Oxides of Sulphur (as SOx)	7.4	676	IS-11255 (P-2)		
3	Oxides of Nitrogen (as NOx)	28.7	328	IS-11255 (P-7)		
4	Carbon Monoxide (as CO)	43.5	139	I\$-13270		
5	Nickel & Vanadium (os Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS		

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullakhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: NL/100002169 Test Report No.: 201912230112

Test Report Date: 01/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

 Date of Sampling
 : 23/12/2019

 Time of Sampling
 : 11:10

 Test Started on
 : 25/12/2019

 Test Completed On
 : 30/12/2019

Purpose of monitoring : To Check the Pallution Load

Sampling Location : DHDT

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 75
Diameter of the stack (m) : 2.25
Sampling duration (min) : 30

Observations:

Flue Gas Temperature °C : 159
Ambient Air Temperature °C : 16
Flue Gas Velocity (m/s) : 10.27

Analysis Report

Sr. No.	Parameters	Results (rng/Nm³)	Mixed Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.18	40	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	8.32	666	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	21,1	327	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	54.3	138	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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TEST REPORT

issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Job Booking No.: 100002174 Test Report No.: 201912240111 Test Report Date: 01/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 24/12/2019 Time of Sampling : 16:10 Test Started on : 26/12/2019 Test Completed On : 30/12/2019

Purpose of maniforing : To Check the Pollution Load

Sampling Lacation : CCR Heater Sampling method : IS-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 68 : 2.5 Diameter of the stack(m) Sampling duration (min) :33

Observations:

Flue Gas Temperature °C : 180 Ambient Air Temperature °C : 14 : 10.93 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits mg/Nm³	Test Method		
<u> </u>	Particulate Matters (as PM)	1.92	40	IS-11255 (P-1)		
2	Oxides of Sulphur (as SOx)	10.1	659	IS-11255 (P-2)		
3	Oxides of Nitrogen (as NO _x)	46.7	326	IS-11255 (P-7)		
4	Carbon Monoxíde (as CO)	18.3	138	IS-13270		
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS		

Remark: Not Detected

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Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

TEST REPORT

Job Booking No.: 100002173 Test Report No.: 2019122401110 Test Report Date: 01/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling: 24/12/2019Time of Sampling: 15:20Test Started on: 26/12/2019Test Completed On: 30/12/2019

Purpose of monitoring : To Check the Pollution Load

Sampling Location : NHT

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m): 50Diameter of the stack(m): 1.2Sampling duration (min): 30

Observations:

Flue Gas Temperature °C : 212

Ambient Air Temperature °C : 15

Flue Gas Velocity (m/s) : 11.94

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits mg/Nm³	Test Method		
1	Particulate Motters (as PM)	4.9	39	I\$-11255 (P-1)		
2	Oxides of Sulphur (as SOx)	124.3	645	IS-11255 (P-2)		
3	Oxides of Nitrogen (as NO _x)	35.4	324	IS-11255 (P-7)		
4	Carbon Monoxide (as CO)	19.1	137	IS-13270		
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS		

Remark: Not Detected

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Job Booking No.: 100002171 Test Report No.: 2019122401114 Tesi Report Date: 01/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

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Dote of Sampling : 24/12/2019 Time of Sampling : 12:10 Test Started on : 26/12/2019 Test Completed On :31/12/2019

Furpose of Monitoring : To Check the Pollution Load

Sampling Location : FCCU Heater Sampling method : IS:11255 (P-7)

Normoi operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :80 Diameter of the Stack(m) : 1.75 Sampling Durotion (min) : 32

Observations:

Flue Gas Temperature °C : 180 Ambient Air Temperature °C :18 Flue Gas Velocity (m/s) +11.00

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits (mg/Nm³)	Test Method IS-11255 (P-1)		
1	Particulate Matters (as PM)	1.9	41			
2	Oxides of Sulphur (as SCx)	9.3	678	(\$-11255 (P-2)		
3	Oxides of Nitrogen (as NOx)	25.3	328	IS-11255 (P-7)		
4	Carbon Monoxide (as CO)	6.7	139	IS-13270		
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS		

Remark: Not Detected

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TEST REPORT

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Job Booking No.: 100002175 Test Report No.: 201912260116 Test Report Date: 03/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 26/12/2019 Time of Sampling : 12:15 Test Started on : 28/12/2019 Test Completed On : 02/01/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : UB-1

Sampling method : IS: 11255 (P-7) Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :100 Diameter of the stack(m) : 3.0 Sampling duration (min) :25

Observations:

Flue Gas Temperature °C : 128 Ambient Air Temperature °C : 22 Flue Gas Velocity (m/s) : 12.9

Analysis Report

Sr. No.	Parameters	Results Mixed Limits (mg/Nm³) (mg/Nm³)		Test Method		
1	Particulate Matters (as PM)	2.71	44	IS-11255 (P-1)		
2	Oxides of Sulphur (as SOx)	6.1	730	IS-11255 (P-2)		
3	Oxides of Nitrogen (as NO _x)	91.2	335	IS-11255 (P-7)		
4	Carbon Monoxide (as CO)	1.3	143 iS-13270			
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS		

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TEST REPORT

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Job Booking No.: 100002176 Test Report No. : 201912270110 Test Report Date: 04/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 27/12/2019

Time of Sampling : 10:00

Test Started on : 30/12/2019 Test Completed On : 03/01/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HRSG-I

Sampling method : !\$: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 35 Diameter of the stack(m) : 3.5 Sampling duration (min) : 33

Observations:

Flue Gas Temperature °C : 148 Ambient Air Temperature °C :15 Flue Gas Velocity (m/s) : 9,97

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.01	44	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	3.9	730	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	180	335	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8.1	143	IS-13270
5	Nickei & Vanadium (as Ni & V)*	BDL(LQQ-0.5)	5	USEPA Methad 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Job Booking No.: 100002177 Test Report No.: 201912270111

Test Report Date: 04/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 27/12/2019 Time of Sampling : 11:15 Test Started on : 30/12/2019

Test Completed On : 03/01/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HRSG-2

Sampling method : IS: 11255 (?-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 35 Diameter of the stack (m) : 3.5 Sampling duration (min) :35

Observations:

Flue Gas Temperature °C : 145 Ambient Air Temperature °C :16 Flue Gas Velacity (m/s) :9.16

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Limits (mg/Nm³)	Test Method IS-11255 (P-1)		
1	Particulate Matters (as PM)	1.16	44			
2	Oxides of Sulphur (as SOx)	3.1	730	IS-11255 (P-2)		
3	Oxides of Nitrogen (as NOx)	142.3	335	IS-11255 (P-7)		
4	Carbon Monoxide (as CO)	8.9	143	(S-13270		
5	Nickel & Vanadium (as Ni & V)*	BDI.(I.OQ-0.5)	5	USEPA Method 29 By AAS		

Remark: Not Detected

(AUTHORISED SIGNATORY)

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwondi Sabo Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002114-24 Test Report Date: 06/01/2020

Sample Particulars:

Nature of the Sample & No. of Samples

: Ground Water&Eleven Samples

Sample Quantity & Packaging

: 2.0 Liter, Pet Bottle

Test Started on

: 29/12/2019

Test Campleted

: 05/01/2020

Method of Sampling Date of Sampling : \$OP/B/D-3 : 27/12/2019

Sampling Conducted By

: Mr. Manmohan Singh

Analysis Report

Para	ımeter	рН	Odour	Color	Taste	Temp eratur e	Turbidity	TDS	Aikalinli y-as (CaCO ₃)	Total Hardness as (CaCO ₃)	Chlori des	Fluorides
		•				Local	lon					
G	W1	7.61	Agreoble	<5	Agreable	30.0	<1	642	171	255	182.1	0.81
Ģ	W2	7.51	Agreable	<5	Agreable	30.1	<1	620	231	226	216.8	0.83
G	W3	7.37	Agreable	<5	Agreable	30.2	<1	544	202	224	146.9	0.67
G	W4	7,42	Agreable	<5	Agreable	30.1	<1	624	216	221	228.9	0.91
G	W5	7.29	Agreable	<5	Agreable	30.1	<1	561	166	206	115.4	0,61
G	eW6	7.54	Agreable	<5	Agreable	30.1	<1	808	212	212	127.5	0.65
G	SW 7	7.61	Agreable	<5	Agreable	30.2	<1	442	198	215	156.9	0.84
G	8W8	7.32	Agreable	<5	Agreable	30.3	<1	464	216	219	168.4	0,68
G	SW9	7.42	Agreable	<5	Agreable	30.1	<1	528	160	226	141.4	0.94
G	W10	7.61	Agreable	<5	Agreable	30.2	<1	428	224	328	172.9	0.86
G	W11	7.48	Agreable	<5	Agreable	30.1	<1	524	214	258	136.4	0.82
IS	Desi	6.5-8.5	Agreeabl	5	Agreeabl		1	500	200	200	250	1.0
10	rable		e		l e							
50 0	Permi ssible	6.5-8.5	Agreeabl e	15	Agreeabl e		5	2000	600	600	1000	1.5
Pro	otocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23 rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	is:3025 (P-21)	APHA 23년 Ed.

Remark:

GW1; Near Storm Water Pond-South East Side, GW2; Near Storm Water Pond – North East Side, GW3; Near Ecotogical Pond West Side, GW4; Near Ecotogical Pond South East Side of Water Block Area, GW6; Near Solar Pond South East Side of Water Block Area, GW7; Near RO/DM Plant East Side AreaGW8; Near Secured Landfill Area North Side, GW9; Secured Landfill Area South Side, GW11; Near ETP South Side

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullakhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Test Repart Date: 06/01/2020

Ref. No.: NL/100002114-24

Analysis Report

Parameter	Calclu m as Ca	Magn esium as Mg	Sulph ate	Nitrate s	Phenolic Compou nds	lron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmiu m (as Cd)	Chromiu m (as Cr)	Arsenic (as As)
GW1	45.3	25,46	142.6	12,6	BDL	0.21	BDL	1.82	BOL	BDL	BDL
GW2	28.6	12,41	104.2	15,4	BDL	0.28	BDL	0.43	BDL	BDL	BDL
GW3	44.6	26.71	106,8	11.6	BDL	0.31	BDL	BDL	BDL	BDL	BDL
GW4	38.4	31,71	121.3	14.2	BDL	0.26	BOL	BDL	BDL	BDL	BDL
GW5	32.81	22.28	112.4	14.8	8DL	0.28	BDL	BDL	BOL	BDL	BDL
GW6	42.91	21,54	121.6	10.6	BDL	0.21	BDL	BDL	BDL	BDL	BOL
GW7	44.24	16.51	116.7	16.8	BDL	0.24	BDL	BDL	BDL	BDL	8DL
GW8	43.6	23.22	108.2	14.3	BDL	0.26	BDL	BDL	BDL	BOL	BDL
GW9	48.41	34.51	101.2	16.9	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW10	46.91	31.71	118.5	10.2	BDL	0.38	BDL	BDL	BDL	BDL	BDL
GW11	47.46	31.01	120.6	14.8	BDL	0,25	BDL	BDL	BDL	8DL	BDL
Requireme	75	30	200	45	0.001	1	0.001	5	0.003	0.05	0.01
nt as per											
¹ S:10500:20	200	100	400	No Relaxa	0.002	No Relax	No Relaxati	15	tto Relaxatio	No Relaxatio	0.05
12				tion		ation	on		п	n	
Protocol	IS:302 5 (P- 40)	IS:302 5 (P- 46)	APHA 23 rd Ed.	IS:3025 (P-34)	IS:3025 (P-43)	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed,	APHA 23 rd Ed.	APHA 23 rd Ed.

Remark:

GW1: Near Storm Water Pand-South East Side, GW2: Near Storm Water Pand - North East Side, GW3: Near Ecological Pand West Side, GW4: Near Ecological Pand South East Side GW5: 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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+91-129-2241021

+91-9013591021, +91-9013552273

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

Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002114-2124 Test Report Date: 06/01/2020

Analysis Report

Parameter	Lead (as Pb)	Boron (as B)	Cyani de (as CN*)	Seleniu m (as Se*)	RFC	Polycyclic Aromatic Hydrocarb ons (PAH*)	Mineral Oil*	Anionic Detergent*	Aluminum (as Ai)	Total Coliform
GW1	BDL	0.20	BDL	BDL	BDI.	8DL	BDL	8DL	BDL	Absent
GW2	BDL	0.21	BDL	8DL	BDL	BDL	BDL	BDL	BDL	Absent
GW3	8DL	0.22	BDL	BDL	BOL	BDL	8DL	BOL	BDL	Absent
GW4	BDL	0.21	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW5	BDL	0.24	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW6	BDL	0,31	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW7	BDL	0,25	BDL	BDL.	BOL	BDL	8DL	BDL	BDL	Absent
GW8	BDL	0.26	BDL	BDL	BDL	BDL	BDL	BOL	8DL	Absent
GW9	BDL	0 22	8DL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW10	8DL	0.21	BDL	8DL	BDL	BDt	BDL	8DL	BDL	Absent
GW11	BDL	0.24	BDL	BDL	BDL	BDL	BDL	8DL	BDL	Absent
Requireme	0.01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0,03	Absent
.:10500:20 12	No Relax atlon	1.0	Na	No	1.0	No	No	1,0	0.2	Absent
Protocol	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	IS: 1622

GWT: 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 Side GW5: Near Solar Pand South East Side- East Side of Water Block Area, GW6: Near Solar Pand South East Side- North East Side of Water Block Area, GW7: Near RO/DM Plant East Side AreaGW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area South Side, GW11: Near, ETP, South Side

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Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002130

Test Report Date: 05/01/2020

Sample Particulars:

Nature of the Sample

Date of Monitoring

Purpose of Monitoring Place of Monitoring

Monitoring Conducted By

Protocol Used

: Volatile Organic Carbon

: 30/12/2019

: To Check the Pollution Load

: HMEL Refinery : Mr. Animesh Jha

: Portable PID Based Gas Detector for VOC's - Honeywell RAE

Analysis Report

Sr. No.	Locations	Test Results (PPM)
1	Near ETP	0.3
2	Near Rail Gantry	BDL
3	Near Road Gantry	BDL
4	Battery limits of CDU/VDU	BDL
5	Battery limits of FCCU	BDL
6	Battery limits of DHDT	BDL
7	8attery limits of VGO-HDT	8DL
8	Battery limits of MS Block	BDL
9	Battery limits of DCU	BDL
10	Product Intermediate Storage Tanks Down Wind Direction	BDL
11	Product Intermediate Storage Tank UP Wind Direction	BDL
12	Near HPCL Product Dispatch Pumps	0.2
13	Battery limits of PPU	BDL
14	Near Crude Oil storage Tanks	0.4
15	Battery Limits of SRU Block	8DL

Remark:

BDL-Below Detection Limit (LOQ-0.1)

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo

Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002125 Test Report Date: 06/01/2020

Sample Particulars:

Nature of the Sample

: ETP Outlet

Sample Quantity & Packaging

: 2.0 Liter, Pet Bottle

Test Started on Test Completed : 29/12/2019 : 05/01/2020

Method of Sampling

: SOP/B/D-3

Date of Sampling Sampling Conducted By

: 27/12/2019 : Mr. Manmohan Singh

Place of Sompling

: W-1: ETP Outlet, Inside GGSR

TEST RESULT

Sr. No.	Parameter	Unit	Result	Permissible	Protocol
			W-1	Limits	
1	pH	***	7.41	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	14.6	20.0	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	86.4	125.0	IS:3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	10	15.0	IS:3025 (P-44)
5	Oil & Grease (O&G)	mg/L	BDŁ	5.0	IS;3025 (P-39)
6	Phenolic Compounds (C6H5OH)	mg/L	0.16	0.35	IS:3025 (P-43)
7	Sulphide (S)	mg/L	0.12	0.5	IS:3025 (P-29)
8	Ammonia (N)	mg/L	5,42	15.0	IS:3025 (P-34)
9	Total Kjeldahl Nitrogen (NH3)	mg/L	14.8	40	IS:3025 (P-34)
10	Phosphate	mg/L	0.18	3.0	IS:3025 (P-31)
11	Cyanide (CN*)	mg/L	BDL	0.20	APHA-23 rd Ed.
12	Total Chromium	mg/L	BDL	2.0	IS:3025 (P-52)
13	Chromium Hexavalent (Cr+6)	mg/L	BDL	0.1	IS:3025 (P-52)
14	Copper (Cu)	mg/L	BDL	1,0	APHA -23 rd Ed.
15	Lead (Pb)	mg/L	BDL	0.1	APHA-23 rd Ed.
16	Mercury (Hg)	mg/L	BDL	0.01	APHA-23rd Ed.
17	Zinc (Zn)	mg/L	BOL	5.0	APHA-23rd Ed.
18	Nickel (Ni)	mg/L	BDL	1.0	APHA-23rd Ed.
19	Vanadium (V*)	mg/L	BDL	0.2	APHA-23 rd Ed.
20	Benzene*	mg/L	BDL	0.1	APHA-23 rd Ed.
21	Benzo* (a)-Pyreen	mg/L	BDL	0.2	APHA-23 rd Ed.

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(RAVINDER MITTAL)

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Saba

Disti.Bhatinda, Punjab, India

Ref. No.: NL/100002126

Test Report Date: 06/01/2020

Sample Parliculars:

Nature of the Sample

: STP Outlet Refinery

Sample Quantity & Packaging

: 2.0 Liter, Pet Bottle

Started on

: 29/12/2019

Test Campleted

: 05/01/2020

Method of Sampling

: SOP/B/D-3

Date of Sampling

: 27/12/2019

Sampling Conducted By

: Mr. Manmohan Singh

Place of Sampling

: W-2: STP Outlet, Inside GGSR

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Standards	Profocol
			W2	1	
1	pH	-	6.94	6.5 to 9.0	IS:3025 (P-11)
2	Temperature	°C	28.6	-	IS:3025 (P-9)
3	TSS	mg/i	8.2	≤10mg/l	IS:3025 (P-17)
4	COD	mg/l	40	≤50mg/l	4S:3025 (P-58)
5	BOD	mg/l	4.8	≤10mg/i	IS:3025 (P-44)
6	0 & G	mg/l	ND	≤5mg/l	IS:3025 (P-39)
7	Ammonical Nitrogen as N*	mg/l	1,24	≤5mg/l	IS:3025 (P-34)
8	N-tatal*	mg/l	3,82	≤10mg/l	IS:3025 (P-34)
9	PO4-P*	mg/l	0.18	≤2mg/l	IS:3025 (P-31)
10	Total Coliform Count	MPN/100ml	98	≤230/100mg/l	IS: 1622

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com



NITYA LABORATORIES

💡 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002129 Test Report Date: 06/01/2020

Sample Particulars:

Nature of the Sample : ETP Outlet

Sample Quantity & Packaging : 5.0 Liter, Pet Bottle

: 29/12/2019 Test Started on Test Completed : 05/01/2020 Method of Sampling : SOP/B/D-3 : 27/12/2019 Date of Sampling

Sampling Conducted By : Mr. Manmohan Singh

Place of Sampling : W-5: ETP Outlet, Inside GGSR

St. No.	Parameters	Unit	Test Result	Protocol
			W5	
1	Bioassay Toxic Test	%	98 % survival of fish after 96 hours in 100 % effluent	IS:6582 (P-1)

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C+91-191-2465597

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002145-54 Test Report Date: 06/01/2020

Sample Particulars:

Nature of the Sample & No. of Samples

: Outside Ground Water & Eleven Samples

Sample Quantity & Packaging

: 2.0 Liter, Pet Bottle

Test Started on

: 29/12/2019

Test Completed

: 05/01/2020

Method of Sampling

: SOP/B/D-3

Date of Sampling Sampling Conducted By : 27/12/2019 : Mr. Manmohan Singh

Analysis Report

Parameter	pΗ	Odour	Color	Taste	Temp eratur e	Turbidity	TDS	Alkalinity as (CaCO ₃)	Total Hardness as (CaCO ₃)	Chfori des	Fluorides
					Locat	ion			-		
GW1	7.28	Agreable	<5	Agreable	20	<1	470	175	223	228	0.97
GW2	7.41	Agreable	<s< td=""><td>Agreabie</td><td>20</td><td><1</td><td>365</td><td>144</td><td>190</td><td>139</td><td>0.69</td></s<>	Agreabie	20	<1	365	144	190	139	0.69
GW3	7.5	Agreable	<5	Agreable	20	<1	429	190	318	141.3	0.62
GW4	7.43	Agreable	<5	Agreable	20	<1	431	198	351	182.1	0.59
GW5	7.61	Agreable	<5	Agreable	20	<1	672	256	480	349.4	0.76
GWG	7.52	Agreable	<5	Agreable	20	<1	893	342	561	387.2	0.87
GW7	7.42	Agreable	<5	Agreable	20	<1	447	233	326	168.3	0.52
GW8	7.57	Agreable	<5	Agreable	20	<1	527	280	310	174.2	0.71
GW9	7,39	Agreable	<5	Agreable	20	<1	390	174	238	225.3	0.39
GW10	7.41	Agreable	<5	Agreable	20	<1	351	166	176	165.1	0.42
GW11	7.28	Agreable	<5	Agreable	20	<1	451	180	214	210	0.74
Requiremen	6.5-8.5	Agreeable	5	Agreeable	-	1	500	200	200	250	1.0
t as per (S:19500	6.5-8.5	Agreeable	15	Agreeable	*	5	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)	APHA 23 rd Ed.	IS:3025 (P-16)	I5:3025 (P-23)	IS: 3025 (P-21)	IS:3025 (P-21)	APHA 23 rd Ed.

Remark:

GW1: Phulokari, GW2: Jagmalwali, GW3: Ramsara, GW4: Raman Mandi, GW5: Teno Pujaram, GW6: Pipli, GW7: Naurang, GW8: Khokhar GW9: Bangi Roughu, GW10: Takhanwala, GW11: Sekho

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

Issued to: HPCL-Mittal Energy Limited Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Ref. No.: N1/100002145-54 Test Report Date: 06/01/2020

Analysis Report

Test Report

Parameter	Calcium as Ca	Magnes ium as Mg	Sulpha te	Nitrates	Phenolic Compoun ds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromium (as Cr)	Arsenic (as As)
GW1	53.4	21.8	101.2	29.7	BDL [LOQ- 0.001]	8DL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDŁ [LOQ- 0.05]	BDL[LOQ -0.01]
GW2	43.5	19.8	98.4	23.1	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL (LOQ- 5]	BDL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW3	51.1	46.3	112.3	30.4	BDL [LQQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [I.OQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOC -0.01]
GW4	56.3	51.2	124.6	_ 34.2	BDL [LOQ- 0.001]	8Dt [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW5	100.4	55.8	187.1	18.6	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LQQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL (LOQ- 0.05)	BDL[LOQ -0.01]
GW6	87.7	83.2	223.4	24.3	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0,003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW7	65.0	39,8	145.1	29.1	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	80L[LOQ - 0.001]	BDL [LOQ- 5]	BDL (LOQ- 0.003)	BDL (LOQ- 0.05]	BDL[LOQ -0.01]
GW8	31.3	56.4	153.5	39.7	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW9	62.7	19.8	98.2	12.1	BDL (LOQ- 0.001)	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDI. [LOQ- 0.05]	BDL(LOQ -0.01)
GW10	22.1	29.4	75.8	4.2	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDI [LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BOL [LOQ- 0.05]	BDI.[LOQ -0.01]
GW11	38.8	28.5	123.3	4.9	8DL [LOQ- 0.001]	BOL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
Requiremen t as per IS:10500	75	30	200	45	0.001	1	0.001	S	0.003	0.05	0.01
13:10300	200	100	400	No Relaxati on	0.002	No Relaxatio n	No Relaxati on	15	No Relaxation	No Relaxation	0.05
Protocol	IS:3025 (P-40)	IS:3025 (P-46)	APHA 23 rd Ed.	IS:3025 (P-34)	IS:3025 (P-43)	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.

Remark:

GW1: Phulokari, GW2: Jagmalwali, GW3: Ramsara, GW4: Raman Mandl, GW5: Teno Pujaram, GW6: Pipli, GW7: Naurang, GW8: Khokhar GW9: Bangi Roughu, GW10: Takhanwala, GW11: Sekho

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Test Report

Issued to: HPCL-Mittal Energy Limited
Village Phullokhari, Taluka Talwandi Sabo
Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002145-54 Test Report Date: 06/01/2020

Analysis Report

Parameter	Lead (as Pb)	Boro n (as B)	Cyanide (as CN*)	Selenium (as Se*)	RFC	Polycyclic Aromatic Hydrocarb ons (PAH*)	Mineral Oil*	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL[LOQ- 0.01]	0.24	BDL(LOQ- 0.05)	BDL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BDL (LOQ- 0.2]	BDL [LOQ- 0.03]	Absent
GW2	BDL{LOQ- 0.01}	0.2	BDL[LOQ- 0.05]	BDL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDL [LOQ- 0.0001]	80L [LOQ- 0.5]	BDL (LOΩ- 0.2]	BDL (LOQ- 0.03]	Absent
GW3	BDL[LOQ- 0.01]	0.38	BDL[LOQ- 0.05]	BDL[LOQ- 0.01]	8DL[LOQ- 0.2]	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BDŁ [LOQ- 0.2]	8DL [LOQ- 0.03]	Absent
GW4	8DL[LOQ- 0.01]	0.27	BDL[LOQ- 0.05]	8DL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BDL [LOQ- 0.2]	BDL (LOQ- 0.03)	Absent
GW5	BDt[LOQ- 0.01]	0.19	BDL[LOQ- 0,05]	BDL[ŁOQ- 0.01]	BDL[LOQ- 0.2]	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BDL [LOQ- 0.2]	BDL [LOQ- 0.03]	Absent
GW6	BDL[LOQ- 0.01]	0.29	8DL(LOQ- 0.05]	BDL[LOQ- 0.01]	BDL(LOQ- 0.2)	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BDL [LOQ- 0.2]	BDL [LOQ- 0.03]	Absent
GW7	BDL[LOQ- 0.01]	0.46	BDL[LOQ- 0.05]	BDL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDL (LOQ- 0.0001)	BDL [LOQ- 0.5]	BDL [LOQ- 0.2]	BDL [LOQ- 0.03]	∧bs∈nt
GW8	BDL[LOQ- 0.01]	0.42	BDL[LOQ- 0.05]	BDL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDŁ [LOQ- 0.0001]	BDL [LOQ- 0.5]	មី២៤ [LOQ- 0.2]	BDL [LOQ- 0.03]	Absent
GW9	BDL(LOQ- 0.01]	0.41	BDL(LOQ- 0.05)	BDL[LOQ- 0.01]	BDL(LOQ- 0.2)	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BDL (LOQ- 0.2)	BDL (LOQ- 0.03)	Absent
GW10	BDL[LOQ- 0.01]	0.34	8DL[LOQ- 0.05]	BDL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	BD1, [LOQ- 0.2]	BDL [LOQ- 0.03]	Absent
GW11	BDL[LOQ- 0.01]	0.29	BDL[LOQ- 0.05]	8DL[LOQ- 0.01]	BDL[LOQ- 0.2]	BDL [LOQ- 0.0001]	BDL [LOQ- 0.5]	ROL [LOQ- 0.2]	BDL [LOQ- 0.03]	Absent
Requiremen	0.01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0.03	Absent
t as per 15:10500	No Relaxatio n	1.0	No	No	1,0	No	No	1.0	0.2	Absent
Protocol	APHA 23 rd Ed.	APH A 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APEA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	IS; 1622

Remark:

GW1: Phulokari, GW2: Jagmalwali, GW3: Ramsara, GW4: Raman Mandi, GW5: Teno Pujaram, GW6: Pipli, GW7: Naurang, GW8: Khokhar GW9: Bangi Roughu, GW10: Takhanwala, GW11: Sekho

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+91-9013591021, +91-9013552273

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002155-62 Test Report Date: 06/01/2020

Sample Particulars:

Nature of the Sample & No. of Samples

: Outside Ground Water & Eight Samples

Sample Quantity & Packaging

: 2.0 Liter, Pet Bottle

Test Started on

: 29/12/2019

Test Completed

: 05/01/2020

Method of Sampling

: SOP/B/D-3

Date of Sampling

: 27/12/2019

Samoling Conducted 8v

: Mr. Manmohan Singh

Analysis Report

Parameter	рН	Odour	Calor	Taste	Temp eratur e	Turbidity	TDS	Alkalinity as (CaCO ₃)	Total Hardnes s as (CaCO ₃)	Chlori des	Fluoridas
					Locatio	n			, ,ar		
GW12	7.35	Agreeable	<5	Agreeable	20	<1	439	192	192	198.3	0.52
GW13	7.37	Agreeable	< 5	Agreeable	20	<1	421	182	230	98.7	0.67
GW14	7.56	Agreeable	<5	Agreeable	20	<1	437	159	206	107.2	0.43
GW15	7.49	Agreeable	< 5	Agreeable	20	<1	348	176	230	140.2	0.49
GW16	7.36	Agreeable	<5	Agreeable	20	<1	295	158	128	97.3	0.41
GW17	7.54	Agreeable	<5	Agreeable	20	<1	420	145	241	126.7	0.29
GW18	7.41	Agreeable	<5	Agreeable	20	<1	440	182	256	165.1	0.64
GW19	7.38	Agreeable	<5	Agreeable	20	<1	419	160	287	156.2	0.59
Requiremen	6,5-8.5	Agreeable	5	Agreeable		1	500	200	200	250	1.0
t as per !\$:10500	6.5-8.5	Agreeable	15	Agreeable	-	5	2000	600	600	1000	1.5
Protocol	tS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23 rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	IS:302 5 (P-21)	APHA 23 Ed.

Remark:

GW12: Desu, GW13: Hassu, GW14: Bangi Deepa, GW15: Bathinda Railway Station, GW16: Bhakra (DS), GW17:Bathinda GW18: Kota Branch Near Jodhpur Village, GW19: Township

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• 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

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Test Report

Issued to: HPCL-Mittal Energy Limited Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002155-62 Test Report Date: 06/01/2020

Analysis Report

Parameter	Calcium as Ca	Magnes ium as Mg	Sulpha te	Nitrate s	Phenolic Compound s	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmium (as Cd)	Chromiu m (as Cr)	Arsenic (as As)
GW12	40.5	22.1	138.7	3.7	BDL (LOQ- 0.001)	BDL [LOQ- 0.3]	BDL(LOQ - 0.001)	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BOL (LCQ- 0.051	BDL[LOQ -0.01]
GW13	35.8	34.2	113.2	8.1	BDŁ [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	8DL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW14	37.4	27.4	96.3	5.6	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL (LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW15	60.5	19.2	123.2	13.5	BDL (LOQ- 0.001)	BOL (LOQ- 0.3)	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDŁ [LOQ- 0.003]	8DL [LOQ- 0.05]	BDL[LOQ -0.01]
GW16	25.3	15.8	65.3	3.1	BDL (LOQ- 0.001)	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL (LOQ- 5)	BDL [LOQ- 0.003]	BDL (LOQ- 0.05)	BDL[LOQ -0.01]
GW17	59.8	22.3	92.G	11.2	BDL [LOQ- 0.001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL[LOQ -0.01]
GW18	24.1	47.6	118.2	15.6	BDL [LOQ- 0.001]	80t (LOQ- 0.3)	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL [LOQ- 0.05]	BDL(LOQ -0.01)
GW19	62.11	32.1	120.2	14.2	BDL [LOQ- 0,001]	BDL [LOQ- 0.3]	BDL[LOQ - 0.001]	BDL [LOQ- 5]	BDL [LOQ- 0.003]	BDL (LOQ- 0.05)	BDL[LOQ -0.01]
Requiremen t as per	75	30	200	45	0.001	1	0.001	5	0.003	0.05	0.01
IS:10500	200	100	400	No Relaxa tion	0,002	No Relaxatio n	No Relaxati on	15	No Relaxation	No Relaxatio n	0.05
Protocol	15:2025 (P-40)	IS:3025 (P-46)	APHA 23 ^{nl} Ed.	15:302 5 (P- 34)	IS:3025 (P-43)	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.

Pemark:

GW12: Desu, GW13: Hassu, GW14: Bangi Deepa, GW15: Bathinda Railway Station, GW16: Bhakra (DS), GW17:Bathinda GW18: Kota Branch Near Jodhpur Village, GW19: Township

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES:



NITYA LABORATORIES

 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

+91-191-2465597

Ref. No.: NL/100002155-62

Test Report Date: 06/01/2020

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Analysis Report

Parameter	Lead (as Pb)	Boro n (as B)	Cyanide (as CN*)	Selenium (as Se*)	RFC	Polycyclic Aromatic Hydrocarb	Mineral Oil*	Anionic Detergent*	Aluminum (as Al)	Total Colliform
						ons (PAH*)				
GW12	BDL [LOQ-	0.31	BDL (LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LQQ-	BDL [LOQ-	8DL [LOQ-	BDL [LOQ-	Absent
	0.01)		0.05]	0.01]	0.2]	0.0001]	0.5)	0.2]	0.03]	
GW13	BDL [LCQ-	0.31	BDL {LOQ-	BDL [LOQ-	BDL [I.OQ-	BDL [LOQ-	BDL [LOQ-	BDL (LOQ-	BDL [LOQ-	Absent
	0.01)		0.05)	0.01]	0.2]	0.0001]	0.5]	0.2]	0.03]	
GW14	BDL [LOQ-	0.39	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	BDL (LOQ-	BDL (LOQ-	BDL [LOQ-	BDL [LOQ-	Absent
	0.01]		0.05]	0.01]	0.2]	0.0001] -	0.5]	0.2]	0.03]	
GW15	BDL [LOQ-	0.16	BDL [LOQ-	BDL [LOQ-	BDL (LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	Absent
	0.01}		0.05]	0.01)	0.2]	0.0001]	0.5]	0.2}	0.03)	
GW16	BDL [LOQ-	0.23	BDL [I.OQ-	BDL [LOQ-	BDL [LOQ-	BDL [LDQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	Absent
	0.01]		0.05]	0.01]	0.2]	0.0001]	0.5)	0.2]	0.03]	
GW17	BDL [LOQ-	0.28	BDL (LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	BDL [LOQ-	Absent
	0.01]		0.05]	0.01]	0.2]	0.0001)	0.5]	0.2]	0.03]	
GW18	BDL (LOQ-	0.21	BOL [LOQ-	BDL (LOQ-	BDL [LOQ-	8DL [LOQ-	BDL [LOQ-	BOŁ (LOQ-	BOL [LOQ-	Absent
	0.01]		0.05]	0.01)	0.2]	0.0001]	0.5]	0.2}	0.03)	
GW19	BDL [LOQ-	0.19	BDL (LOQ-	BDL [LOQ-	BDI. [LOQ-	BDL [LOQ-	BDL [LOQ-	BDL (LOQ-	BDL [LOQ-	Absent
	0.01]		0.05]	0.01]	0.2]	0.0001]	0.5]	0.2]	0.03]	
Requiremen	0.01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0.03	Absent
t as per IS:10500	No R⊕laxatio n	1.0	No	No	1.0	No	No	1.0	0.2	Absent
Protocol	APHA 23 rd	АРН	APHA 23 rd	APHA 23 rd	APHA 23 rd	APHA 23 rd	APHA 23 rd	APHA 23 rd	APHA 23 rd	15: 1622
	Ed.	A 23 rd	Ed.	Ed.	Ed.	€d.	Ed.	Ed.	Ed.	
	1	Ed.							ļ	

emark:

GW12: Desu, GW13: Hassu, GW14: Bangi Deepa, GW15: Bathinda Railway Station, GW16: Bhakra (DS), GW17:Bathinda GW18: Kota Branch Near Jodhpur Village, GW19: Township

(AUTHORISED SIGNATORY)

(PAVINDER MITTAL)

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Scanned copy of original Manual Environmental Monitoring Test reports Jan'2020



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

Q 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

491-191-2465597

Ref. No.: NL/100002256, 2273, 2301, 2326, 2363, 2428, 2462, 2495

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Test Report Date: 08/02/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-1

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. Animesh Jha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Pa	rameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP*), ng/m³	Lead (as Pb), µg/ m³
03/01/2020	09:40	1.00	5,032	BDL	BDL	BDL
06/01/2020	09:55	1.11	4,327	BDL	BDL	BDL
09/01/2020	09:30	1.10	4.032	BDL	BDL	BDL
13/01/2020	09:46	1.11	2.937	BDL	BDL	BDL
16/01/2020	09:50	1.11	3.926	BDL	BDL	BDL
20/01/2020	09:40	1,21	4.102	BDL	BDŁ	BDL
23/01/2020	10:10	1,20	3.921	BDL	BDL	BDL
28/01/2020	10:20	1.12	5.937	BDL	BDL	BDL
National Ambient Standards (2009)	Air Qualit	y Monitoring	20	6	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

*NAAQ\$ - National Amblent Air Quality Standards; Schedule-Ytl, (Rule 3 (3B)), (Part-II-sec.-3(I)) 16.11,2009, BDL-Below Detection timit, Arsenic-BDL (LOQ- 6,0) BAP-BDL (LOQ- 1.0), Lead-BDL [LOQ- 1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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(RAVINDER MITTAL)

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🗸 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

5+91-191-2465597

🕍 info@nityalab.com 🐶 www.nityalab.com

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

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

Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002257, 2274, 2302, 2327, 2364, 2429, 2463, 2500

Test Report Date: 08/02/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-2

: To Check the Pollution Load

; IS 5182 (Part 14)

: Mr. Animesh Jha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Po	rameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP·), ng/m³	Lead (as Pb), µg/ m³
03/01/2020	09:55	1.15	4.391	BDL	BDL	BDL
06/01/2020	10:10	1.20	3.1.29	BDL	BDL	BDL
09/01/2020	09:45	1,14	5.927	BDL	8DL	BDL
13/01/2020	09:58	1.10	3.287	BDL	BDL	BDL
16/01/2020	10:10	1,13	4.192	BDL	BDL	BDL
20/01/2020	09:55	1.04	4.980	BDL	BDL	BDL
23/01/2020	10:25	1,20	3.192	BDL	BDL	BDL
28/01/2020	10:35	1.11	4.019	BDL	BDL	BDL
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

Remark:

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(RAVINDER MITTAL)

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

^{*}NAAQS - National Ambient At Quality Standards; Schedule-VII, [Rule 3 (38)], [Port-il-sec.-3()] 16.11.2009, BDL-Below Detection Limit, Arsenic-BDL (LOQ- 6.0] BAP-BDL [LOQ-1.0], Lead-BDL [LOQ-1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAGMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three



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• 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

L+91-191-2465597

info@nityalab.com 🗘 www.nityalab.com

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhori, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Ref. No.: NL/100002258, 2275, 2303, 2328, 2365, 2430,2464, 250

Test Report Date: 08/02/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Manitoring Station (AAQMS)-3

: To Check the Pollution Load

: IS 5182 (Part 14)

; Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter						
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP·), ng/m³	Lead (as Pb), µg/ m³			
03/01/2020	10:15	1,10	4,102	BDL	BDL	BDL			
06/01/2020	10:25	1.10	3.028	BDL	BDL	BDL			
09/01/2020	10:00	1.11	5.017	BDL	BDL	BDL			
13/01/2020	10:15	1.12	4.121	BDL	BDL	BDL			
16/01/2020	10;25	1.20	4.927	BOL	BDL	BDL			
20/01/2020	10:10	1.14	3.018	BDL	BDL	BDL			
23/01/2020	10:40	1.20	4.291	8DL	BDL	BDL			
28/01/2020	10;50	1.11	5.012	BDL	BDL	BDL			
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01			
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)			

Remark

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, (Rule 3 (38)), (Part-II-sec.-3(I)) 16.11.2009, BDL-Below Detection Limit, Assente BDL (LOQ+ 6.0) BAF-8DL (LOQ+ 1.0). Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Statlon, N.A.-Not Applicable, Sample Analysed within Three days

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(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES:



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- 🗣 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), Indja
- **L**+91-191-2465597
- info@nityalab.com 💀 www.nityalab.com

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt, Bhatinda, Puniab, India

Ref. No.: NL/100002259, 2276, 2304, 2329, 2366, 2431, 2465, 250;

Test Report Date: 08/02/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Samplina Duration (Hrs.)

: Ambient Air Quality Monitaring

: Ambient Air Quality Monitoring Station (AAQMS)-4

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Pa	rameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP*), ng/m³	Lead (as Pb), µg/ m³
03/01/2020	10:30	1.11	4.192	BDL	BDL	BDL
06/01/2020	10:40	1.14	5.920	BDL	BDL	BDL
09/01/2020	10:15	1.10	3.102	BDL	BDL	BDL
13/01/2020	10:30	1,14	4.136	BDL	BDL	BDL
16/01/2020	10:40	1.11	5.821	BDL	BOL	BDL
20/01/2020	10:25	1.14	4.125	BDL	BDL	8DL
23/01/2020	10:55	1.20	5.821	BDL	BDL	BDL
28/01/2020	11:10	1.11	3.624	BDL	BDL	BDL
National Ambient A Standards (2009)	Air Quality	Monitoring	20	6	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

Remark:

"NAAQS - National Ambient Air Quality Standards; Schedule-VII, (Rule 3 (3B)), [Part-It-sec.-3(i)] 16.11.2009, BDL-Bellow Detection Limit, Arsenic-BDL [LOQ- 6.0] BAP-BDL [LOQ- 1.0]. Lead-BDL [LOQ-1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Alr Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com



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

💡 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

491-191-2465597

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Disti. Bhatinda. Puniab. India

Ref. No.: NL/100002260, 2277, 2305, 2330, 2367,2432, 2466, 2505

Test Report Date: 08/02/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-5

: Ta Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter						
			Nickel	Arsenic (as As),	Benzo(a)pyren	Lead			
			(as Ni),	ng/m³	e (as BAP'),	(as Pb),			
			ng/m³	3,	ng/m³	$\mu g/m^3$			
03/01/2020	10:40	1.10	3.928	BDL	BDL	BDL			
06/01/2020	10:55	1.21	4.193	BDL	BDL	BDL			
09/01/2020	10:30	1.21	5.016	BDL	8DL	BDL			
13/01/2020	10:45	1.02	4.283	BDL	BDL	BDL			
16/01/2020	10:55	1.10	5.281	BDL	BDL	BDL			
20/01/2020	10:40	1.10	3.826	BDL	BDL	BDL			
23/01/2020	11:10	1.12	4.324	BDL	BDL	BDL			
28/01/2020	11:25	1.14	4.154	8DL	BDL	BOL			
National Ambient	Air Quality	Monitoring	20	6	01	01			
Standards (2009) Test Method			AAS	AAS	I\$:5182	IS;5182			
iesi welliod		Methad	Method	(P-12)	(P-22)				

*NAAQ\$ - National Ambient Air Quality Standords; Schedule-VII, [Rule 3 (38)], [Part-II-sec,-3(])] 16,11,2009, 8DL-Below Detection Limit, Arsenk-8DL [LOQ-6.0] BAP-BDL [LOG- 1.0], Lead-BDL [LOG- 1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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+91-9013591021, +91-9013552273

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt, Bhatinda, Punjab, India

Ref. No.: NL/100002261, 2278, 2306, 2331, 2368, 2433, 2467, 2504

Test Report Date: 08/02/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-6

; To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of	Time	AFR for RDS				F	'arameter	,			
Sampling		(m3/min)	Ni ng/m³	As ng/m³	BAP*, ng/m³	Pb µg/ m³	PM _{2.5} μg/m ³	PM ₁₀ μg/m ³	SO ₂ µg/m³	NO₂ µg/m³	CO'
03/01/2020	10:55	11:20	3.182	BDL	BDL	BDL	67.3	118.4	29.8	49.7	0.726
06/01/2020	11:10	11:25	4.321	BDL	BDL	BDL	65.5	123,4	28,6	43.3	0.213
09/01/2020	10:45	11:01	2.381	BDL	BDL	BDL	67.9	126.7	32.9	47.7	0.546
13/01/2020	10:58	11:25	5.576	BOL.	BDL	BDL	65.8	120.6	25.6	43.3	0.532
16/01/2020	11:10	11:30	3.612	BDL	BDL	BDL	70.1	119.8	31.2	39.7	0.631
20/01/2020	10:55	11:10	2.632	BDL	BDL	BDL	63.4	128.7	29.5	31.2	0.798
23/01/2020	11:20	11:35	4.192	BDL	BDL	BDL	67.3	121.1	38.4	34.3	0,612
28/01/2020	11:35	11:45	5.256	BDL	BDL	BDL	65.5	113.2	32.1	37.6	0.661
National Am Monitoring S			20	6	01	01	60	100	80	80	04
Test Method		-	AAS Method	AAS Method	iS:5182 (P-12)	IS:5182 (P-22)	Gravi metric	IS:5182 (P-23)	IS:5182 (P-2)	IS:5182 (P-6)	NDIR Method

*NAAQS - National Ambient Air Quality Standards; Schedute-VII. (Rufe 3 (38)). (Part-li-sec.-3(i)) 16.) 1.2009, BDL-Below Detection Limit, Assenic-BDL (LOQ- 6.0) BAP-BDL (LOQ- 1.0) Lead-BDL (LOQ-1.0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within three days after Receipt.

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(RAVINDER MITTAL)

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt, Bhatinda, Punjab, India

Ref. No.: NL/100002550

Test Report Date: 08/02/2020

Sample Particulars:

Nature of the Sample

Date of Monitoring

Purpose of Monitoring

Place of Monitoring Monitoring Conducted By

Protocol Used

: Ambient Noise

: 30/01/2020

: To Check the Pollution Load

: HMEL Refinery

: Mr. Animesh Jha

: 15: 9989

Analysis Report

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
Permissi	ble Limit in *dB(A) Leq For Industrial Area	75 dB(A)	70 dB(A)
1	Near Refinery Main Gate	74.1	68.6
2	Near Fire Water Reservoir	68.3	68.7
3	Near Road Crude Oil Tanks	72.1	63.3
4	Near ETP and Flare	73.2	65.1
5	Near Storm Water Pond East Side	70.8	61,2
6	Near Sulphur Yard South East Side	72.1	62,3
7	Near Rail Loading Dispatch South East Side	72.9	8,06
8 .	Near CPP North East Side	71.1	65.1
9	Near Poly Propylene Dispatch Area	72.4	62.3
10	Near Ecological Pond Area	71.1	62.3

'dB (A) Lea denotes the time weighted average of the level of sound in decibel on scale 'A' which is relatable to human hearing. CPC8 = Central Pollution Control Boord

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

Area Code	Category of Area	Limits dB (A) Leq					
		Day Time (6AM – 10PM)	Night Time (10PM – 06AM)				
Α	Industrial Area	75	70				
В	Commercial Area	65	55				
С	Residential Area	55	45				
D	Silence Zone	50	r40				

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+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com



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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Ref. No. : NL/100002593 Test Report No.: 202001230110

Test Report Date: 29/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

: 23/01/2020 Date of Sampling

: 11:00 Time of Sampling

: 25/01/2020 Test Started on : 28/01/2020 Test Completed On

: To Check the Pollution Load Purpose of manitoring

: SRU 524 Sampling Location

: IS: 11255 (P-7) Sampling method

: As per requirement Normal operating schedule

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 100 : 2.0 Diameter of the stock(m) Sampling duration (min) : 30

Observations:

Flue Gas Temperature °C : 179 Ambient Air Temperature °C :14 Flue Gas Velocity (m/s) : 13,04

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NOx)	43.9	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	21.3	100	IS-13270
3	Oxides of Sulphur (as SOx)	143,5	N.A.	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	8DL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Ref. No.

: NL/100002594

Test Report No.: 202001230111

Test Report Date: 29/01/2020

Sample Particulars:

Nature of the sample

: Stack Gas Emission

Date of Sampling

: 23/01/2020

Time of Sampling

: 12:30

Test Started on

: 25/01/2020

Test Completed On Purpose of monitoring : 28/01/2020

Sampling Location

: To Check the Pollution Load

: SRU 525

Sampling method

: IS: 11255 (P-7)

Narmal operating schedule

: As per requirement

Type of stack /duct

: Mild Steel

Stack height from Ground Level (m)

: 100

Diameter of the stack(m)

; 2.0

Sampling duration (min)

: 30

Observations:

Flue Gas Temperature °C

: 177

Ambient Air Temperature °C Flue Gas Velocity (m/s)

: 14

: 12.81

Analysis Report

\$r. No.	Parameters	Results (mg/Nm³)	Limils 100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NO _x)	38.7	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	26.4	100	IS-13270
3	Oxides of Sulphur (as SOx)	152.1	NA	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark; Nol Defected

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002553-2563 Test Report Date: 08/02/2020

Sample Particulars:

Nature of the Sample & No. of Samples

Sample Quantity & Packaging

Test Started on Test Completed Method of Sampling Date of Sampling

Sampling Conducted By

: Ground Water & Eleven Samples

: 2.0 Liter, Pet Bottle

: 30/01/2020 : 07/02/2020 : SOP/B/D-3

: 29/01/2020

: Mr. Manmahan Singh

Analysis Report

Para	meler	pН	Odour	Color	Taste	Temper ature	Turbidity	TDS	Alkalinity as (CaCO ₃)	Total Hardness as (CaCO ₃)	Chlori des	Fluorides
	- "-					Location						
Ģ	SW1	7.32	Agreeable	<5	Agreeoble	27.7	<1	562	145	267	189.3	0.98
G	GW2 7.431 Agreeal		Agreeable	<5	Agreeable	27.5	<1	482	201	219	225.4	0.81
G	GW3 7.24 Agreeable <		<5	Agreeable	27.1	<1	501	189	218	167.5	0.76	
C	GW4 7.38 Agreeable <5		<5	Agreeable	27.4	<1	621	203	223	278.9	0.89	
0	GW5	7.39	Agreeable	<5	Agreeable	27.8	<1	457	181	245	120.3	0.69
(SW6	7.40	Agreeable	<5	Agreeable	27.3	<1	564	231	301	131.1	0.63
(GW7	7.45	Agreeable	<5	Agreeable	27.9	<1	431	178	198	165.}	0.81
	SW8	7.29	Agreeable	<5	Agreeable	27.1	<1	401	201	190	179.8	0.87
	GW9	7.43	Agreeable	<5	Agreeoble	27.2	<1	524	155	217	150.6	0.79
G	W10	7.53	Agreeable	<5	Agreeable	27.5	<1	441	221	297	189.2	0.81
G	W11	7.40	Agreeable	<5	Agreeable	27.7	<1	512	273	276	141.1	0.76
IS 10 50	Desi rable	6.5-8.5	Agreeable	5	Agreeable	-	1	500	200	200	250	1.0
0	Perml ssible	6.5-8.5	Agreeable	15	Agreeable	-	5	2000	600	600	1000	1.5
Pro	otocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23™ Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	15:3025 (P-21)	APHA 23 rd 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 Side GWS; Near Solar Pand South East Side- East Side- East Side of Water Black Area, GW6; Near Solar Pand South East Side- North East Side of Water Black Area, GW7; Near RO/DM Plant East Side- North AreaGW8: Neor 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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BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India Ref. No.: NL/100002553-2563 Test Report Date: 08/02/2020

Analysis Report

Parameter	Calciv m as Ca	Magn esium as Mg	Sulph ate	Nitrate s	Phenolic Compou nds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmiu m (as Cd)	Chromlu m (as Cr)	Arsenic (as As)
GW1	47.61	31.92	142.6	14.3	BDL	0,31	BOL	1,82	BDL	BDL	BD!.
GW2	34.22	14.39	104.2	13.1	BDL	0.21	BDL	0.43	8DL	BDL ·	BDL
GW3	49.63	23,10	8.601	12.9	8DL	0.22	BDL	BDL	BDL	8DL	BDI.
GW4	42.16	29.30	121.3	15.6	BDL	0.28	BDL	BDL	BDL -	BDL	BDL
GW5	33.57	25.47	112.4	18.3	BDL	0.21	BDL	BDL	BDL	BDL	BDL
GW6	43.12	22,18	121.6	13.1	BDL	0.27	BDL	BDL	BDL	BDL	BDL
GW7	49.89	19.29	116.7	12.1	BDL	0.29	BDL	BDL	BOL	BDL	BDL.
GW8	43.31	29.19	108.2	13.9	BDL	0,21	BDL	BDL.	BDL	BDL	BOL
GW9	48.41	31.19	104.9	15.7	BDL.	0.18	BDL	BDL	BDL	BDL	BDL
GW10	50.29	34,29	121.4	11.1	BDL	0.26	BDL	BDL	BOL	BDL	BDL
GW11	48.87	29.16	129.4	15.1	BDL	0.29	BDL	BDL	BDL	BDL	BDL
Requiremen t as per	75	30	200	45	0.001	1	0.001	5	0.003	0.05	0.01
IS:10500	200	100	400	No Relaxall on	0.002	No Relaxati on	No Relaxation	15	No Relaxation	No Relaxatio n	0.05
Protocol	IS:3025 (P-40)	IS:3025 (P-46)	APHA 23 rd Ed.	IS:3025 (P-34)	IS:3025 (P-43)	APHA 23/d Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed,

Remork:

GW1: Near Storm Water Pand-South East Side, GW2: Near Storm Water Pand - North East Side, GW3: Near Ecological Pand West Side, GW4: Near Ecological Pand South East Side GW5: Near Solar Pand South East Side - North East Side - No

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Ref. No.: NL/100002553-2563

Test Report Date: 08/02/2020

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

Test Report

Issued to: HPCL-Miltal Energy Limited Village Phullokhari, Toluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Analysis Report

Parameter	Lead (as Pb)	Boron (as B)	Cyani de (as CN*)	Seleniu m (as Se*)	RFC	Polycyclic Aromatic Hydrocarb ons (PAH*)	Mineral Oil*	Anionic Detergent*	Aluminum (as Al)	Total Coliform
GW1	BDL	0.23	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW2	8DL	0.19	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW3	BD1.	0,20	BDL	BDL -	BDL	BDL	8DL	BDL	BDL	Absent
GW4	BOL	0.25	BOL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW5	8DL	0.29	BDL	BDL	BOL	BDL	BOL	BDL	BDL	Absent
GW6	BDL	0.35	BDL	BDL	8DL	BDL	8DL	BDL	BDL	Absent
GW7	BDL	0.20	BDL.	BDL	BDL	BDL	BDL	BDL.	BDL	Absent
GW8	BDL	0.29	BDL	8DL	BDL	BDL	BDL	BDL	BDL	Absent
GW9	BDL	0.21	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
GW10	BDL	0.25	BDL	BDL	BDL	BDL.	BDL	BDL	BDL	Absent
GW11	BDL	0,28	BOL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
Requireme nt as per	0.01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0,03	Absent
IS:10500	No Relax atlon	1.0	No	No	1.0	No	No	1.0	0.2	Absent
Protocol	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	15: 1622

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 Side GWS: 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 AreaGW8: 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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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com



NITYA LABORATORIES

🗣 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

!! +91-191-2465597

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002552

Test Report Date: 08/02/2020

Sample Particulars:

Nature of the Sample

Date of Monitoring

Purpose of Monitoring

Place of Monitoring

Monitoring Conducted By

Protocol Used

: Volatile Organic Carbon

: 30/01/2020

: To Check the Pollution Load

: HMEL Refinery

; Mr. Animesh Jha

: Portable PID Based Gas Detector for VOC's - Honeywell RAE

Analysis Report

Locations -	Test Results (PPM)
Near ETP	0.4
Near Rail Ganfry	BDL
Near Road Gantry	BDL
Battery limits of CDU/VDU	BDL
Battery limits of FCCU	BDL
Battery limits of DHDT	BDL
Battery limits of VGO-HDT	BDL
Battery limits of MS Block	BDL
Battery limits of DCU	BDL
Product Intermediate Storage Tanks Down Wind Direction	BDL
Product Intermediate Storage Tank UP Wind Direction	BOL
Near HPCL Product Dispatch Pumps	0.3
Battery limits of PPU	BDL
Near Crude Oil storage Tanks	0.1
Battery Limits of SRU Block	BDL
	Near ETP Near Rail Gantry Near Road Gantry Battery limits of CDU/VDU Battery limits of FCCU Battery limits of DHDT Battery limits of VGO-HDT Battery limits of MS Block Battery limits of DCU Product Intermediate Storage Tanks Down Wind Direction Product Intermediate Storage Tank UP Wind Direction Near HPCL Product Dispatch Pumps Battery limits of PPU Near Crude Oil storage Tanks

BDL-Below Detection Limit (LOQ-0.1)

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo

Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002564

Test Report Date: 08/02/2020

Sample Particulars:

Sample Quantity & Packaging

Test Started on

Test Completed

Method af Sampling

Date of Sampling

Sampling Conducted By

Place of Sampling

: 2.0 Liter, Pet Bottle

: 30/01/2020

: 07/02/2020

: SOP/B/D-3

: 29/01/2020

: Mr. Manmahan Singh

: W-1: ETP Outlet, Inside GGSR

Test Report

\$r. No.	Parameter	Unit	Result	Permissible	Protocol
			W-1	- Limits	!
1	pH		7.35	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	15.8	20.0	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	83.1	125.0	IS:3025 (P-58)
4	Bio-Chemical Oxygen Demand (3 days of 27°C) (BOD)	mg/L	11,2	15.0	IS:3025 (P-44)
5	Oil & Grease (O&G)	mg/L	BDL	5.0	IS:3025 (P-39)
6	Phenolic Compounds(C6H5OH)	mg/L	0.21	0.35	IS:3025 (P-43)
7	Sulphide (S)	mg/L	0.18	0.5	IS:3025 (P-29)
8	Ammonia (N)	mg/L	6.81	15.0	IS:3025 (P-34)
9	Total Kjeldahl Nitrogen (NH3)	mg/L	15.2	40	IS:3025 (P-34)
10	Phosphate	mg/L	0.43	3.0	IS:3025 (P-31)
11	Cyanide (CN*)	mg/L	BDL	0,20	APHA-23 rd Ed.
12	Total Chromium	mg/L	8DL	2.0	IS:3025 (P-52)
13	Chromium Hexavalent (Cr+6)	mg/L	BDL	0.1	IS:3025 (P-52)
14	Copper (Cu)	mg/L	BOL	1,0	APHA -23 rd Ed.
15	Lead (Pb)	mg/L	BDL	0.1	APHA-23 rd Ed.
16	Mercury (Hg)	mg/L	BDL	0.01	APHA-23 rd Ed.
17	Zinc (Zn)	mg/L	8DL	5.0	APHA-23 rd Ed.
18	Nickel (Ni)	mg/L	BDL	1.0	APHA-23 rd Ed.
19	Vanadium (V*)	mg/L	BDL	0.2	APHA-23 rd Ed.
20	Benzene*	mg/L	BDL	0.1	APHA-23 rd Ed.
21	Benzo* (a)-Pyreen] mg/L	BDL	0.2	APHA-23 rd Ed.

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• 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, TalukaTalwandi Saba

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

Distt.Bhatinda, Punjab, India

Ref. No.: NL/100002565

Test Report Date: 08/02/2020

Sample Particulars:

Nature of the Sample

Sample Quantity & Packaging

Test Started on

Test Completed Method of Sampling

Date of Sampling

Sampling Conducted By

Place of Sampling

: STP Outlet Refinery

: 2.0 Liter. Pet Battle

: 30/01/2020

: 07/02/2020

: SOP/B/D-3

: 29/01/2020

: Mr. Manmohan Singh

: W-2: STP Outlet, Inside GGSR

Analysis Report

Parameters	Unit	Test Results	Standards	Protocol
		W2	-i	
рН	-	7.91	6.5 to 9.0	IS:3025 (P-11)
Temperature	°C	25.6	-	IS:3025 (P-9)
TSS	mg/l	7.9	≤10mg/l	IS:3025 (P-17)
COD	mg/l	34.5	≤50mg/l	IS:3025 (P-58)
BOD	mg/l	4.1	≤10mg/l	IS:3025 (P-44)
0&G	mg/l	BDL	≤5mg/l	IS:3025 (P-39)
Ammonical Nitrogen as N*	mg/l	1.56	≤5mg/l	IS:3025 (P-34)
N-total*	mg/l	4.19	≤10mg/l	IS:3025 (P-34)
PO4-P*	mg/l	0.19	≤2mg/l	IS:3025 (P-31)
Total Coliform Count	MPN/100m1	99	≤230/100mg/l	IS: 1622
	pH Temperature TSS COD BOD O & G Ammonical Nitrogen as N* N-total* PO4-P*	pH - OC TSS mg/l COD mg/l Mg/l O & G mg/l Ammonical Nitrogen as N* mg/l N-total* mg/l mg/l PO4-P* mg/l	W2 pH 7.91 Temperature °C 25.6 TSS mg/l 7.9 COD mg/l 34.5 BOD mg/l 4.1 O & G mg/l BDL Ammonical Nitrogen as N* mg/l 1.56 N-total* mg/l 4.19 PO4-P* mg/l 0.19	W2 pH - 7.91 6.5 to 9.0 Temperature °C 25.6 - TSS mg/l 7.9 ≤10mg/l COD mg/l 34.5 ≤50mg/l BOD mg/l 4.1 ≤10mg/l O & G mg/l BDL ≤5mg/l Ammonical Nitrogen as N* mg/l 1.56 ≤5mg/l N-total* mg/l 4.19 ≤10mg/l PO4-P* mg/l 0.19 ≤2mg/l

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Ref. No.: NL/100002568 Test Report Date: 08/02/2020

Sample Particulars:

Nature of the Sample

: ETP Outlet

Sample Quantity & Packaging

: 5.0 Liter, Pet Bottle

Test Started on

: 30/01/2020

Test Completed

: 07/02/2020

Method of Sampling

Date of Sampling

: SOP/B/D-3 : 29/01/2020

Sampling Conducted By

: Mr. Manmohan Singh

Place of Sompling

: W-5; ETP Outlet, Inside GGSR

Analysis Report

Sr. No.	Parameters	Unit	Test Result	Protocol
		,	W5	
1	Bioassay Toxic Test	%	98 % survival of fish after 96 hours in 100 % effluent	IS:6582 (P-1)

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

Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100002715,2734,2773,2818,2849,2891,2926,2943

Test Report Date: 09/03/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring Method of Sampling

Monitoring Conducted By Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-1

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. Animesh Jha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RD\$ (m3/min)		Pa	rameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP'), ng/m³	Lead (as Pb), µg/ m³
03/02/2020	09:50	0.99	5.927	BDL	BDL	BDL
07/02/2020	10:05	1.12	4.091	8DL	BDL	BDL
10/02/2020	09:45	1.15	4.291	BDL	BDL	BDL
14/02/2020	10:00	1.10	4.019	BDL	BDL	BDL
17/02/2020	10:05	1.00	3.716	BDL	BDL	BDL
21/02/2020	09:55	1.12	5.019	BDL	BDL	BDL
24/02/2020	10:25	1.21	4.917	BDL	BDL	BDL
27/02/2020	10:35	1,14	5,017	8DL	BDL	BOL
National Ambient . Standards (2009)	Air Qualit	y Monitoring	20	06	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

*NAAQS - National Ambient Air Quality Standards; Schedule-VII. (Rule 3 (38)), (Part-It-sec.-3(i)) 16.11.2009, BDL-Below Detection Limit, Arsenic-BDL (LOO- 6.0) BAP-BDL (LOQ- 1.0), Lead-BDL [LOQ- 1.0], N.A.-Not Applicable. AFR-Average Flow Rale, AAQMS-Ambient Air Quality Monitoring Statlon, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Punjab, India

Report No.: NL/100002716,2735,2774,2819,2850,2892,2926,2944

Test Report Date: 09/03/2020

Sample Particulars

Nature of the Sample : Ambient Air Quality Monitoring

Sampling Location : Ambient Air Quality Monitoring Station (AAQMS)-2

: To Check the Pollution Load Purpose of Monitoring

Method of Sampling : IS 5182 (Part 14) Monitaring Conducted By : Mr. Animesh Jha

Sampling Duration (Hrs.) : 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Porameter			
		(,	Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP ⁻), ng/m ³	Lead (as Pb), µg/ m³	
03/02/2020	10:04	1.16	5.039	BDL	BDL	BDL	
07/02/2020	10:20	1.10	2.102	BDL	BDL	8DL	
10/02/2020	09:58	1.00	3.0192	BDL	BDL	BDL	
14/02/2020	10:14	0.99	4.625	BDL	BDL	BDL	
17/02/2020	10:19	1.21	5.172	BOL	BDL	BDL	
21/02/2020	10:05	1.11	4.029	BDL	BDL	BDL	
24/02/2020	10:35	1.12	4.724	BDL	BDL	BDL	
27/02/2020	10:58	1.14	5.725	BDL	BDL	BDL	
National Ambient / Standards (2009)	Air Quality	Monitoring	20	06	01	01	
Test Method			AAS Mefhod	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)	

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^{*}NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (1981), [Part-It-sec.-3(t)] 16.11.2007, BDL-Betow Detection Limit, Arsenic-BDL [LOQ--6.0] BAP-BDL [LOQ-1.0), Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.



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

Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Report No.: NL/100002717,2736,2775,2820,2851,2893,2927,2945

Test Report Date: 09/03/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling Monitoring Conducted By Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-3

: To Check the Pollution Load

: IS 5182 (Part 14) : Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)	Parameter					
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP ⁻), ng/m ³	Lead (as Pb), µg/ m³		
03/02/2020	10:15	1.21	3.019	BDL	BDL	BDL		
07/02/2020	10:34	1.11	3.028	BDL	8DL	8DL		
10/02/2020	10:04	1.10	4.918	8DL	BDL	BDL		
14/02/2020	10:27	1,11	5.018	BDL	BDL	BDL		
17/02/2020	10:32	1.12	4.827	BDL	BDL.	BDL		
21/02/2020	10:20	1.15	3.827	BDL	BDL	BDL		
24/02/2020	10:40	1.21	5,018	BDL	BDL	BDL		
27/02/2020	11:15	1.00	5.132	BDL	BDL	BDL		
National Ambient A Standards (2009)	Air Quality	Monitoring	20	06	01	01		
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	(S:5182 (P-22)		

Remark:

"NAAQS - Notlonal Ambient Air Quality Standards; Schedule-VII, (Rule 3 (36)), (Part-It-sec.-3(1)) 16.11.2009, BDL-Below Detection Limit, Arsenic-BDL (LOQ- 6.0) 8AP-BDL (LOQ- 1.0), Lead-BDL [LOQ- 1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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Report No.: NL/100002718,2737,2776,2821,2852,2894,2928,2946

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Test Report Date: 09/03/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Manitoring

Method of Sampling Monitoring Conducted 8y Sampling Duration (Hrs.)

; Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-4

: To Check the Pollution Load

: IS 5182 (Part 14) : Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Pa	rameter	
			Nickel (as NI), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyren e (as BAP'), ng/m³	Lead (as Pb), µg/ m³
03/02/2020	10:30	1,12	5.018	BDL	BOL	BDL
07/02/2020	10:46	1.11	4.761	8DL	BDL	BDL
10/02/2020	10:17	1.21	4.817	BDL	BDL	BOL
14/02/2020	10:42	1.10	4.526	BDL	BDL	BDL
17/02/2020	10:48	1.00	3.918	8DL	BDL	BDL
21/02/2020	10:35	1.11	6.029	BDL	BDL	BDL
24/02/2020	10:55	1.14	4.192	BDL	BDL	BDL
27/02/2020	11:38	1.10	2.019	BDL	BDL	BDL
National Ambient / Standards (2009)	Air Quality	Monitoring	20	06	01	01
Test Method		-	AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

Remork:

*NAAQS - National Ambient Air Quality Standards; Schedule-VIII, (Rule 3 (38)), (Part-lisec. 3(8) 16.11.2009, 8DL-8elow Detaction Limit, Arsenia-BDL [LOQ- 6.0] 8AP-BDL [LOQ- 1.0], Lead-BDL (LOQ-1,0), N.A.-Not Applicable, AFR-Average Flow Rate, AAOMS-Ambiant Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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(RAVINDER MITTAL)

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Puniab, India

Report Na.: NL/100002719,2738,2777,2822,2853,2895,2929,2947

Test Report Date: 09/03/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling Monitaring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-5

: To Check the Pollution Load

: IS 5182 (Part 14)

; Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR for RDS (m3/min)		Pai	rameter	
		(1,12,11,112)	Nickel	Arsenic (as As),	Benzo(a)pyren	Lead
			(as Ni),	ng/m³	e (as BAP),	(as Pb),
			ng/m³		ng/m³	µg/ m³
03/02/2020	10:47	1.11	4.019	BDL	BDŁ	BDL
07/02/2020	10:58	1.00	5.019	BDL	8DL	BDL
10/02/2020	10:31	1.12	4.921	BDL	BDL	BDL
14/02/2020	10:53	1.12	4.283	8DL	BDL	BDL
17/02/2020	10:58	1.14	3.928	BDL	BDL	BDL
21/02/2020	10:50	1.00	3.029	BDL	BDL	BDL
24/02/2020	11:02	1.11	5.019	BDL	BDL	BDL
27/02/2020	11:50	1.12	4.324	BDt.	BDL	BDL
National Ambient A Standards (2009)	Air Quality	Monitoring	20	06	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

*NAAQS – National Ambient Air Quality Standards; Schedule-VII, (Rule 3 (38)), (Parl-II-sec.-3(i)) 16.11.2009, BDL-Below Detection Limit, Attento-BDL (LOQ-6.0) BAP-BDL [LOQ- 1.0], Lead-BDL [LOQ- 1.0], N.A.-No1 Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-No1 Applicable, Sample Analysed within Three days after Receipt,

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(RAVINDER MITTAL)

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt.Bhatinda, Punjab, India

Report No.: NL/100002720,2739,2778,2823,2854,2896,2930,2948

Test Report Date: 09/03/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling
Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Manitoring Station (AAQMS)-6

: To Check the Pollution Load

: IS 5182 (Part 14)

: Mr. AnimeshJha : 24 Hrs.

Analysis Report

Date of	Time	AFR for RDS				ŀ	arametei	,			
Sampling		(m3/min)	Ni ng/m³	As ng/m³	BAP', ng/m³	Pb μg/ m³	PM _{2.5} μg/m ³	PM ₁₀ μg/m ³	SO ₂ µg/m³	NO₂ µg/m³	CO' mg/m³
03/02/2020	11:20	1.12	4.019	BDL	BDL	BDL	67.3	118.4	29,8	49.7	0.726
07/02/2020	11:25	1,00	3.918	BDL	BDL	BDL	65.5	123,4	28.6	43,3	0,213
10/02/2020	11:01	1.21	3.921	BDL	BDL	BDL	67.9	126,7	32.9	47.7	0,546
14/02/2020	11:25	1.20	4.820	BDL	BOL	BDL	65.8	120.6	25.6	43.3	0.532
17/02/2020	11:30	1.11	4,462	BDL	BDL	BDL	70.1	119.8	31.2	39.7	0.631
21/02/2020	11:10	1.00	4.019	8DL	BDL	BDL.	63.4	128.7	29.5	31.2	0.798
24/02/2020	11:35	1.23	5.801	BDL	BDL	BDL	67.3	121.1	38.4	34.3	0.612
27/02/2020	11:45	1.00	5.213	BDL	BDL	BDL	65.5	113.2	32.1	37.6	0.661
National Ami			20	80	01	01	60	100	80	80	04
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)	Gravi metric	IS:5182 (P-23)	IS:5182 (P-2)	1S:5182 (P-6)	NDIR Method

Remark:

*NAAQS - National Ambient Air Quality Standards; Schedule-VII., [Rule 3 (3B)], [Part-li-sec.-3(j)] 16.11.2009, BDL-Below Detection Emit. Arsenic-BDL [LOQ- 6.0] BAP-BDL [LOQ- 1.0]
Lead-BDL [LOQ- 1.0], N.A.-Not Applicable, AfR-Average Flow Rate, AAQMS-Ambient Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

🐧 www.nityalab.com



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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003008 Test Report Date: 09/03/2020

Sample Particulars:

Nature of the Sample : Ambient Noise
Date of Monitoring : 29/02/2020

Purpose of Monitaring : To Check the Pollution Load

Place of Monitoring : HMEL Refinery
Monitoring Conducted By : Mr. Animesh Jha

Protocol Used : IS: 9989

Analysis Report

Sr. No.	Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
Permissi	ble Limit in *dB(A) Leq For Industrial Area	75 dB(A)	70 dB(A)
· i	Near Refinery Main Gate	73.9	68.6
2	Near Fire Water Reservoir	70.1	68.7
3	Near Road Crude Oil Tanks	71.2	63.3
4	Near ETP and Flare	72,1	65.1
5	Near Storm Water Pond East Side	71,2	61.2
6	Near Sulphur Yard South East Side	73.5	62.3
7	Near Rail Loading Dispatch South East Side	71.2	60.8
8	Near CPP North East Side	72,11	65,1
9	Near Poly Propylene Dispatch Area	73.2	62.3
10	Near Ecological Pond Area	69.1	62.3

^{*}dB (A) Lea 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 ore given for reference

Area Code	Category of Area	Limits d8 (A) Leq			
. [Day Time (6AM – 10PM)	Night Time (10PM – 06AM)		
A	Industrial Area	75	70		
В	Commercial Area	65	55		
С	Residential Area	55	45		
D .	Silence Zone	50	40		



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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100002586 Test Report Date: 24/01/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

 Date of Sampling
 : 17/01/2020

 Time of Sampling
 : 12:00

 Test Started on
 : 20/01/2020

 Test Completed On
 : 23/01/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : HGU-1

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 70
Diameter of the stack (m) : 2.6
Sampling duration (min) : 35

Observations:

Flue Gas Temperature °C : 169
Ambient Air Temperature °C : 14
Flue Gas Velocity (m/s) : 11.03

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	4.92	42	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	9.3	693	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	98.37	330	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	8.2	140	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Below Detection Limit

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

Test Report

: 25/01/2020

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100002587

Test Report Date: 27/01/2020

Nature of the sample : Stack Gas Emission Date of Sampling : 20/01/2020

Time of Sampling : 15:15 Test Started on : 22/01/2020

Purpose of monitoring : Ta Check the Pollution Load

Sampling Location : HGU-2

Sampling method : I5-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :70 Diameter of the stack(m) : 2.6 Sampling duration (min) :30

Observations:

Test Completed On

: 165 Flue Gas Temperature °C Ambient Air Temperature °C :12 Flue Gas Velocity (m/s) ; 11.58

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	1.98	38	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	9.42	636	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	97.39	323	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	11.4	137	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Below Detection Limit

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labsnitya@gmail.com

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003024 Test Report Date: 18/02/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

 Date of Sampling
 : 12/02/2020

 Time of Sampling
 : 10:00

 Test Started on
 : 14/02/2020

 Test Completed On
 : 17/02/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : DCU

Sampling method : IS-11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65
Diameter of the stack (m) : 3.14
Sampling duration (min) : 34

Observations:

Flue Gas Temperature °C : 152
Ambient Air Temperature °C : 21
Flue Gas Velocity (m/s) : 9.86

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.9	43	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	79.5	719	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	67.5	334	(S-11255 (P-7)
4	Carbon Monoxide (as CO)	31	142	IS-13270
5	Nickel & Vanadium (as Nî & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100002589 Test Report Date: 28/01/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

Date of Sampling : 21/01/2020 : 13:30 Time of Sampling Test Started on : 23/01/2020 Test Completed On : 27/01/2020

: To Check the Pollution Load Purpose of monitoring

: Naphtha Heater Sampling Location Sampling method : IS-11255 (P-7) : As per requirement Normal operating schedule

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) :30 Diameter of the stack(m) :1.2 Sampling duration (min) : 58

Observations:

: 285 Flue Gas Temperature °C Ambient Air Temperature °C : 14 Flue Gas Velocity (m/s) : 7.35

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.7	41	IS-11255 (P-1)
2	Oxides of Sulphur (as SO _x)	9.8	679	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	23.4	329	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	38.9	139	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0,5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatindo, Punjab, India

Report No.: NL/100003029 Test Report Date: 21/02/2020

Sample Particulars:

Nature of the sample

Date of Sampling

Time of Sampling

Test Started on

Test Completed On

Purpose of monitoring

Sampling Location

Sampling method

Normal operating schedule

Type of stack /duct

Stack height from Ground Level (m)

Diameter of the stack(m)

Sampling duration (min)

Observations:

Flue Gas Temperature °C

Ambient Air Temperature °C

Flue Gas Velocity (m/s)

: Stack Gas Emission

: 15/02/2020

: 12:30

: 17/02/2020

: 20/02/2020

: To Check the Pollution Load

: CCR Heater

: IS-11255 (P-7)

: As per requirement : Mild Steet

: 68

: 2,5

: 37

: 137

: 22 : 9.81

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	1.99	40	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	12.3	659	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	42.1	326	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	16.9	138	IS-13270
5	Nickel & Vanadium (as Ni & V)"	BDL(LOQ-0.5)	5	USEPA Methad 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Villoge Phullokhari, Taluka Talwandi Sobo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003028 Test Report Date: 21/02/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

: 15/02/2020 Date of Sampling : 10:00 Time of Sampling Test Started on : 17/02/2020

Test Completed On : 20/02/2020 : Ta Check the Pollution Load Purpose of monitoring

Sampling Location · NHT

: IS: 11255 (P-7) Sampling method Normal operating schedule : As per requirement

: Mild Steel Type of stack /duct

Stack height from Ground Level (m) : 1.2 Diameter of the stack(m) Sampling duration (min) : 35

Observations:

: 228 Flue Gas Temperature °C Ambient Air Temperature °C :21 Flue Gas Velocity (m/s) : 11,06

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	4.1	39	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	129.4	645	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	37.6	324	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	16.7	137	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Nat Detected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100002585 Test Report Date: 23/01/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

: 15/01/2020 Date of Sampling : 14:30 Time of Sampling

Test Started on : 17/01/2020 Test Completed On : 22/01/2020

Purpose of Monitoring : To Check the Pollution Load

: FCCU Heater Sampling Location Sampling method : IS:11255 (P-7)

: As per requirement Normal operating schedule

Type of stack /duct : Mild Stee!

Stack height from Ground Level (m) : 80 Diameter of the Stack(m) : 1,75 Sampling Duration (min) : 55

Observations:

Flue Gas Temperature °C : 224 : 19 Ambient Air Temperature °C Flue Gas Velocity (m/s) : 6.94

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.5	41	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	9.9	678	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	21.8	328	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	7.9	139	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Delected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003022 Test Report Date: 19/02/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

Date of Sampling : 11/02/2020 Time of Sampling 111:00 : 13/02/2020 Test Started on Test Completed On : 18/02/2020

Purpose of monitoring : To Check the Pollution Load

: SRU 524 Sampling Location Sampling method : IS: 11255 (P-7) Narmal operating schedule : As per requirement

; Mild Steel Type of stack /duct

Stack height from Ground Level (m) :100 Diameter of the stack(m) : 2.0 : 30 Sampling duration (min)

Observations:

Flue Gas Temperature °C : 180 Ambient Air Temperature °C : 19 Flue Gas Velocity (m/s) : 13.05

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NO _x)	43.2	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	19.3	100	IS-13270
3	Oxides of Sulphur (as SOx)	143.2	N.A.	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003023 Test Report Date: 19/02/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

Date of Sampling : 11/02/2020 : 12:30 Time of Sampling Test Started on : 13/02/2020 Test Completed On : 18/02/2020

: To Check the Pollution Load Purpose of monitoring

Sampling Location : SRU 525 : IS: 11255 (P-7) Sampling method Normal operating schedule : As per requirement

: Mild Steel Type of stack /duct

: 100 Stack height from Ground Level (m) Diameter of the stack(m) : 2.0 Sampling duration (min) : 30

Observations:

Flue Gas Temperature °C : 183 Ambient Air Temperature °C :19 Flue Gas Velocity (m/s) : 12,60

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits 100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NO _x)	39,5	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	21.4	100	IS-13270
3	Oxides of Sulphur (as SOx)	151,5	NA	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Report No.: NL/100003025 Test Report Date: 20/02/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

Date of Sampling : 13/02/2020 Time of Sampling : 11:30 Test Started on : 15/02/2020 Test Completed On : 19/02/2020

: To Check the Pollution Load Purpose of monitoring

Sampling Location : CDU/VDU Sampling method ; IS: 11255 (P-7) Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) · 85 Diameter of the stack(m) ; 4.3 Sampling duration (min) :34

Observations:

Flue Gas Temperature °C : 154 : 22 Ambient Air Temperature °C : 10.00 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	4.87	40	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	52.1	659	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	14.4	326	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	9.1	138	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt, Bhatinda, Punjab, India

Report No.: NL/100003032 Test Report Date: 28/02/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

: 22/02/2020 Date of Sampling Time of Sampling : 10:30 Test Started on : 24/02/2020 : 27/02/2020 Test Completed On

: To Check the Pollution Load Purpose of monitoring

: HRSG-I Sampling Location

Sampling method : IS: 11255 (P-7)

Narmal operating schedule : As per requirement

: Mild Steel Type of stack /duct

Stack height from Ground Level (m) : 35 Diameter of the stack(m) : 3.5 :37 Sampling duration (min)

Observations:

: 143 Flue Gas Temperature °C Ambient Air Temperature °C : 24 Flue Gas Velocity (m/s) : 8.89

Analysis Report

\$r. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.87	44	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	3.4	730	IS-11255 (P-2)
3	Oxides of Nitrogen (os NOx)	173	335	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	7.6	143	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Delected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Report No.: NL/100003033 Test Report Date: 28/02/2020

Distt, Bhatinda, Punjab, India

Sample Parliculars:

Nature of the sample : Stack Gas Emission

: 22/02/2020 Date of Sampling Time of Sampling : 12:20

: 24/02/2020 Test Started on : 27/02/2020 Test Completed On

: To Check the Pollution Load Purpose of monitoring

Sampling Location : HRSG-2

Sampling method : IS: 11255 (P-7)

; As per requirement Normal operating schedule

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 35 Diometer of the stack (m) : 3.5 Sompling duration (min) ;38

Observations:

: 145 Flue Gas Temperature °C Ambient Air Temperature °C :24 Flue Gas Velocity (m/s) :8.73

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.87	44	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	3.9	730	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	139.4	335	IS-11255 (P-7)
4	Corbon Monoxide (as CO)	8.9	143	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0,5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Saboʻ

Distt, Bhatinda, Punjab, India

Report No.: NL/100003026 Test Report Date: 28/02/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

: 14/02/2020 Date of Sampling Time of Sampling : 11;00 : 24/02/2020 Test Started on : 27/02/2020 Test Completed On

: To Check the Pollution Load Purpose of monitoring

: VGO Heater Sampling Location : IS: 11255 (P-7) Sampling method

: As per requirement Normal operating schedule

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 65 : 2.25 Diameter of the stack(m) Sampling duration (min) : 37

Observations:

Flue Gas Temperature °C : 158 Ambient Air Temperature °C :21 : 9.23 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	3.7	41	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	7.9	676	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	31.2	328	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	45.5	139	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003027 Test Report Date: 28/02/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

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Date of Sampling : 14/02/2020

Time of Sampling : 12:40

 Test Started on
 : 24/02/2020

 Test Completed On
 : 27/02/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : DHDT-1

Sampling method : IS: 11255 (P-7)

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 75
Diameter of the stack (m) : 2.25
Sampling duration (min) : 38

Observations:

Flue Gas Temperature °C : 155
Ambient Air Temperature °C : 22
Flue Gas Velocity (m/s) : 9.20

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	2.78	40	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	8.93	666	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	23.3	327	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	56.7	138	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

Remark: Not Detected

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003034 Test Report Date: 02/03/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

: 24/02/2020 Date of Sampling : 11:30 Time of Sampling : 26/02/2020 Test Started on : 29/02/2020 Test Completed On

: To Check the Pollution Load Purpose of monitoring

: UB-5 Sampling Location

: IS: 11255 (P-7) Sampling method

: As per requirement, Normal operating schedule

: Mild Steel Type of stack /duct

Stack height from Ground Level (m) : 130 Diameter of the stack(m) ; 3,25 :26 Sampling duration (min)

Observations:

Flue Gos Temperature °C : 131 : 26 Ambient Air Temperature °C Flue Gas Velocity (m/s) : 12,64

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Pet Coke Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	48.7	150	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	281.2	400	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	179.8	300	IS-11255 (P-7)

Remark: Not Detected

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003035 Test Report Date: 02/03/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

: 24/02/2020 Date of Sampling

Time of Sampling : 12:20

Test Started on : 26/02/2020 Test Completed On : 29/02/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : UB-6

: IS: 11255 (P-7) Sampling method

Normal operating schedule : As per requirement

Type of stack /duct : Mild Steel

Stack height from Ground Level (m) : 130 Diameter of the stack(m) : 3.25 Sampling duration (min) : 25

Observations:

: 130 Flue Gas Temperature °C Ambient Air Temperature °C :25 : 12.81 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Pet Coke Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	42.1	150	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	189.4	400	IS-11255 (P-2)
3	Oxides of Nitrogen (as NO _x)	137.8	300	IS-11255 (P-7)

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phuliokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003036 Test Report Date: 02/03/2020

Sample Particulars:

: Stack Gas Emission Nature of the sample

Date of Sampling : 25/02/2020 : 11:00 Time of Sampling

: 26/02/2020 Test Started on : 29/02/2020 Test Completed On

: To Check the Pollution Load Purpose of monitoring

Sampling Location : UB-3

: IS: 11255 (P-7) Sampling method : As per requirement Normal operating schedule

Type of stack /duct : Mild Steel : 100

Stack height from Ground Level (m) Diameter of the stack(m) :3.0 Sampling duration (min) ; 26

Observations:

Flue Gas Temperature °C : 128 Ambient Air Temperature °C : 26 : 12.28 Flue Gas Velocity (m/s)

Analysis Report

Analysis Report

\$r, No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	3.02	44	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	5.8	730	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	89.7	335	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	1.4	143	I\$-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	5	USEPA Method 29 By AAS

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Taiwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003030 Test Report Date: 25/02/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

: 18/02/2020 Date of Sampling Time of Sampling : 11:00 : 21/02/2020 Test Started on

: 24/02/2020 Test Completed On : To Check the Pallution Load Purpose of monitoring

Sampling Lacation : BBU

Sampling method : IS: 11255 (P-7)

: As per requirement Normal operating schedule

: Mild Steel Type of stack /duct

Stack height from Ground Level (m) : 60 Diameter of the stack(m) : 2.0 Sampling duration (min) : 30

Observations:

Flue Gas Temperature °C : 132 Ambient Air Temperature °C :23 Flue Gas Velocity (m/s) : 10.56

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Mixed Fuel Limits (mg/Nm³)	Test Method
1	Particulate Matters (as PM)	4.2	5	IS-11255 (P-1)
2	Oxides of Sulphur (as SOx)	42.5	50	IS-11255 (P-2)
3	Oxides of Nitrogen (as NOx)	119.6	250	IS-11255 (P-7)
4	Carbon Monoxide (as CO)	37.8	150	IS-13270
5	Nickel & Vanadium (as Ni & V)*	BDL(LOQ-0.5)	N.A.	USEPA Method 29 By AAS

Remark: Not Detected

(AUTHORISED SIGNATORY)

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/100003011-3021 Test Report Date: 09/03/2020

Sample Particulars:

Nature of the Sample & No. of Samples

Sample Quantity & Packaging

Test Started on
Test Completed
Method of Sampling
Date of Sampling

Sampling Conducted By

: Ground Water & Eleven Samples

: 2.0 Liter, Pet Bottle

: 02/03/2020 : 07/03/2020 : SOP/B/D-3 : 29/02/2020

: Mr. Manmohan Singh

Analysis Report

Para	meter	рĦ	Odour	Color	Taste	Temper ature	Turbidily	TDS	Alkalinity as (CaCO3)	Total Hardness as (CaCO ₃)	Chlori des	Fluorides
					<u>-</u>	Location						
G	W1	7.32	Agreeable	<5	Agreeoble	25.4	<1	621	138	287	193,2	0,76
G	W2	7.43	Agreeable	<5	Agreeable	26.3	<1	562	231	190	201.5	034
G	W3	7.24	Agreeable	<5	Agreeable	24.5	<1	498	197	231	189.1	0.81
G	SW4	7.38	Agreeable	<5	Agreeable	25,1	<1	590	215	236	265.0	0.56
G	W5	7.39	Agreeable	<5	Agreeable	26.8	<1	410	190	278	124.8	0.76
G	SW6	7.40	Agreeable	<5	Agreeable	26.7	<1	621	265	325	149.7	0,62
G	SW7	7.45	Agreeable	<5	Agreeable	27.1	<1	478	190	214	176.3	0.84
G	8W6	7.29	Agreeable	<5	Agreeable	27.5	<1	490	231	186	189.2	0,81
(SW9	7.43	Agreeable	< 5	Agreeable	27.2	<1	501	179	223	136.7	0.78
G	W10	7.53	Agreeable	<5	Agreeable	27,1	<1	465	231	321	201.1	0.85
G	WII	7.40	Agreeable	<5	Agreeable	25,5	<1	498	269	345	154.3	0.89
IS 0 50	Desi rable	6.5-8.5	Agreeable	5	Agreeable	-	1	500	200	200	250	1.0
0	Permi ssible	6.5-8.5	Agreeable	15	Agreeable	-	5	2000	600	600	1000	1.5
Pro	otocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23 rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	IS:3025 (P-21)	APHA 23 rd Ed.

Remark:

GW1; Near Storm Water Pand-South East Side, GW2; Near Storm Water Pand ~ North East Side, GW3; Near Ecological Pand West Side, GW4; Near Ecological Pand South East Side Pand South East Side of Water Black Area, GW6; Near Solar Pand South East Side of Water Black Area, GW6; Near Solar Pand South East Side of Water Black Area, GW6; Near Solar Pand South East Side of Water Black Area, GW7; Near RO/OM Plant East Side AreaC Near South Side, GW7; Secured Landfill Area West Side, GW10; Secured Landfill Area South Side, GW71; Near E1P South Side

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com



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

Test Report

Analysis Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Toluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Report No.: NL/100003011-3021

Test Report Date: 09/03/2020

Para	meter	Calciu m as Ca	Magn esium as Mg	Sulph ate	Nitrate s	Phenolic Compou nds	lron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmi um (as Cd)	Chromiu m (as Cr)	Arseni c (as As)
G	wı	50.29	32.48	150.2	17.2	BDL	0.35	BOL	BDL	BDL	8DL	BDL
G	W2	38,18	15,19	104.3	12.9	BDL	0.27	8DL	BOL	BOL	BDL	BDL
G	sw3	43.21	25.29	111.3	15.6	BOL	0,22	BDL	8DL	BOL	BDI.	BDL
G	W4	44.28	30.19	116.2	18,7	BDL	0.43	BDL	BDL	BDL	BDL	BDL.
G	W5	34.54	27.49	109.6	19.2	BOL	0.41	BDL	BDL	BDL	BDL	BDL
G	6W6	49.18	24.23	132.6	14.3	BDL	0.29	BDL	BD1.	BDL	BDL	8DL
G	-w7	50.29	20.18	104.]	15.7	BDL	0.32	BDI	BOL	BDL	8DL	BDI
G	SW8	41.21	32.19	111,2	12,5	8DL	0,43	BDL	BDL	BDL	BDL	BDL
-	SW9	47.61	33.92	108.1	17.8	BDL	0,23	BDL	BDL.	BDL	BDL.	BDL
G	W10	49.16	35.58	112.1	13.2	BDL	0.31	8DL	BDL	BDL	8DL	BDL
G	W11	45.46	30.28	130.1	19.3	BDI.	0,24	BDL	BDL	BDL	BDL	BDL
is	Desi	75	30	200	45	0,001	1	0.001	5	0.003	0.05	0.01
10 50	rable	200	100	400	No Relaxati	0.002	No Relaxati	No Relaxation	15	No Relaxati	No Relaxatio	0.05
0	Permi ssible				on		ОП	Reidadioli		on	n	
Pre	otocol	IS:3025 (P-40)	15:3025 (P-46)	APHA 23 rd Ed.	IS:3025 (P-34)	IS:3025 (P-43)	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23'º Ed.	APHA 23 rd Ed.	APHA 23rd Ed

GW1; Near Starm 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 Side GWS: 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 / GW8; Near Secured Landfill Area North Side, GW9; Secured Landfill Area West Side, GW10; Secured Landfill Area South Side, GW1); Near ETP South Side

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Test Report

Issued to: HPCL-Mittal Energy Limited
Village Phuilokhori, Taluka Talwandi Sabo
Distt, Bhatinda, Punjob, India

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

Report No.; NL/100003011-3021 Test Report Date; 09/03/2020

Analysis Report

Parar	meter	lead (as Pb)	Boron (as B)	Cyanî de (as CN*)	Seleniu m (as Se*)	RFC	Polycyclic Aromatic Hydrocarb ons (PAH*)	Mineral Oil*	Anionic Detergent*	Aluminum (as Al)	Total Coliform
G	wī	BDL	0.43	BDL	BDL	BDL	BDL	BDL	8DL	BDL	Absent
G'	W2	BDL	0.25	BDL	BDL	BDL	8DL	BDL	BDL	BDL	Absent
G	w3	BDL	0,28	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
G	W4	BĎL	0.34	BDL	8DL	BDL	BDL	BDL	BDL	BDL	Absent
G	W5	BDL	0.16	BDL	BDL	BDL	BDL	BDL	BDL	8DL	Absent
G	W6	BDL.	0.23	BDL	BDL	8DL	BDL	8DL	BDL	BDL	Absent
G	W7	BDL	0.25	BDL	8DL	BDL	BDL.	BDL	BDL	BDL	Absent
G	W8	BDL	0.25	BDL	BDL	BDL	BDL	BDL	BDL.	BDL	Absent
G	W9	BDL	0.27	BDL	BDL	BDL	BDL	BDL	BDL	BDL	Absent
Gl	W10	BDL	0.32	8DL	BDL	BDľ.	8DL	BDL	BDŁ	BDL	Absent
GI	W11	BDL	0.31	BDL	BOL	BDL	BDL	BDL	BDL	BDL	Absent
IS 105	Desl rable	0,01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0.03	Absent
00	Perm I ssibl e	No Relax ation	1.0	No	No	1.0	No	No	1,0	0.2	Absent
Pro	tocol	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	IS: 1622

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 Side GW5: Near Solar Pond South East Side of Water Black Area, GW6: Near Solar Pond South East Side of Water Black Area, GW7: Near RO/DM Plant East Side Area C Near Secured Landfill Area North Side, GW9: S

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

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

Distt. Bhatinda, Punjab, India

Report No.: NL/100003010 Test Report Date: 09/03/2020

Sample Particulars:

Nature of the Sample

Date of Monitoring

Purpose of Monitoring Place of Monitoring

Monitoring Conducted By

Protocol Used

: Volatile Organic Carbon

: 29/02/2020

: To Check the Pollution Load

: HMEL Refinery

: Mr. Animesh Jha

: Portable PID Based Gas Detector for VOC's - Honeywell RAE

Analysis Report

Sr. No.	Locations	Test Results (PPM)
1	Near ETP	0.3
2	Near Rail Gantry	BDL
3	Near Road Gantry	8DL
4	Battery limits of CDU/VDU	BDL
5	Battery limits of FCCU	BDL
6	Battery limits of DHDT	8DL
7	Battery limits of VGO-HDT	BDL
8	Battery limits of MS Block	BDL
9	Battery limits of DCU	BDL
10	Product Intermediate Storage Tanks Down Wind Direction	BDL
11	Product Intermediate Storage Tank UP Wind Direction	BDL
12	Near HPCL Product Dispatch Pumps	0.6
13	Battery limits of PPU	BDL
14	Near Crude Oil storage Tanks	0,2
15	Battery Limits of SRU Block	BDL

Remarka

BDL-Below Detection Limit (LOQ-0.1)

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo

Distt.Bhatinda, Punjab, India

Report No.: NL/100003022 Test Report Date: 09/03/2020

Sample Particulars:

Sample Quantity & Packaging : 2.0 Liter, Pet Bottle

Test Started on : 02/03/2020 Test Completed : 07/03/2020 Methad of Sampling : SOP/B/D-3 : 29/02/2020 Date of Sampling

Sampling Conducted By : Mr. Manmohan Singh

: W-1: ETP Outlet, Inside GGSR Place of Sampling

Test Report

Sr. No.	Parameter	Unit	Result	Permissible	Protocol
			W-1	- Limits	
1	pH		7.21	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	16.4	20.0	IS:3025 (P-17)
3	Chemical Oxygen Demand (COD)	mg/L	78.2	125.0	IS;3025 (P-58)
4	Bio-Chemical Oxygen Demand (BOD)	mg/L	12.3	15.0	IS:3025 (P-44)
5	Oil & Grease (O&G)	mg/L	8DŁ	5.0	IS:3025 (P-39)
6	Phenolic Compounds(C6H5OH)	mg/L	0.20	0,35	IS:3025 (P-43)
7	Sulphide (S)	mg/L	0.16	0.5	IS:3025 (P-29)
8	Ammonia (N)	mg/L	7.01	15.0	IS:3025 (P-34)
9	Total Kjeldahl Nitrogen (NH3)	mg/L	14.8	40	IS:3025 (P-34)
10	Phosphate	mg/L	0.39	3.0	IS:3025 (P-31)
11	Cyanide (CN*) 6	mg/L	BDL	0.20	APHA-23 rd Ed.
12	Total Chromium	mg/L	BDL	2.0	IS:3025 (P-52)
13	Chromium Hexavalent (Cr+6)	mg/L	BDL	0.1	IS:3025 (P-52)
14	Copper (Cu)	mg/L	BDL	1.0	APHA -23rd Ed.
15	Lead (Pb)	mg/L	BDL	0.1	APHA-23 rd Ed.
16	Mercury (Hg)	mg/L	BDL	0.01	APHA-23 rd Ed.
17	Zinc (Zn)	mg/L	BDL	5.0	APHA-23™ Ed.
18	Nickel (Ni)	mg/L	BOL	1.0	APHA-23rd Ed.
19	Vanadium (V*)	mg/L	BDL	0.2	APHA-23 rd Ed.
20	Benzene*	mg/L	BDL	0.1	APHA-23 rd Ed.
21	Benzo* (a)-Pyreen	mg/L	BDL	0.2	APHA-23 rd Ed.

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalukaTalwandi Sabo

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

Distt.Bhatinda, Punjob, India

Report No.: NL/100003023 Test Report Date: 09/03/2020

Sample Particulars:

Nature of the Sample : STP Outlet Refinery
Sample Quantity & Packaging : 1.0 Liter, Pet Battle

 Test Started an
 : 02/03/2020

 Test Completed
 : 07/03/2020

 Method of Sampling
 : SOP/B/D-3

Date of Sampling : 29/02/2020

Sampling Conducted By : Mr. Manmohan Singh

Place of Sompling : W-2: STP Outlet, Inside GGSR

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Stondards	Protocol
			W2		
1	рН	-	7.31	6.5 to 9.0	IS:3025 (P-11)
2	Temperature	°C	24.3	-	IS:3025 (P-9)
3	TSS	mg/l	8.2	≤10mg/l	IS:3025 (P-17)
4	COD	mg/l	33.2	≤50mg/l	IS:3025 (P-58)
5	BOD	mg/l	4.5	≤10mg/l	IS:3025 (P-44)
6	0 & G	mg/l	BDL	≤5mg/l	IS:3025 (P-39)
7	Ammonical Nitrogen as N*	mg/l	1.82	≤5mg/l	IS:3025 (P-34)
8	N-total*	mg/l	4.82	≤10mg/l	IS:3025 (P-34)
9	PO4-P*	mg/l	0.14	≤2mg/l	IS:3025 (P-31)
10	Total Caliform Count	MPN/100ml	100	≤230/100mg/l	IS: 1622

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

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

Distt, Bhatinda, Punjob, India

Report No.: NL/100003026 Test Report Date: 09/03/2020

Sample Particulars:

: ETP Outlet Nature of the Sample

Sample Quantity & Packaging : 5.0 Liter, Pet Bottle

Started on : 02/03/2020 Test Completed : 07/03/2020 Method of Sampling : SOP/B/D-3 Date of Sampling : 29/02/2020

Sampling Conducted By : Mr. Monmohan Singh

: W-5: ETP Outlet, Inside GGSR Place of Sampling

Sr. No.	Parameters	Unit	Test Result	Protocol
			W5	
1	Bioassay Toxic Test	%	98 % survival of fish after 96 hours in 100 % effluent	IS:6582 (P-1)

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Scanned copy of original Manual Environmental Monitoring Test reports Mar'2020



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Report No.: NL/100003345, 3391, 3414, 3462, 3487, 3544, 3569, 3631

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Test Report Date: 14/05/2020

Distt, Bhatinda, Punjab, India

Sample Particulars

Nature of the Sample Sampling Location Purpose of Monitoring

Method of Sampling Monitoring Conducted By Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

; Ambient Air Quality Manitoring Station (AAQMS)-1

: To Check the Pollution Load

: IS 5182 (Part 14) : Mr. Animesh Jha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR of RDS (m3/min)		Pa	rameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP*), ng/m³	Lead (as Pb), µg/ m³
02/03/2020	10:00	1.00	4.928	BDL	BDL	BDL
06/03/2020	09:40	1.20	4,192	BDL	BDL	BDL
09/03/2020	09:55	1.10	3.982	BDL.	BDL	BDL
13/03/2020	10:06	1,12	2.652	8DL	BDL	BDL
16/03/2020	09:40	1,10	3,762	BDL	BDL	BDL
20/03/2020	09:50	1.16	4.019	BDL	8DL	BDL
26/03/2020	10:10	1.18	3,827	BDL	BDL	BDL
31/03/2020	10:00	1.10	5,019	BDL	BDL	BDL
National Ambient A Standards (2009)	l Air Quality	Monitoring	20	06	01	01
Test Method			AAS Method	AAS Melhod	IS:5182 (P-12)	IS:5182 (P-22)

Remark:

*NAAQS - National Ambient Air Quality Standards; Schedule-VII. (Rute 3 (38)), (Part-It-sec.-3(i)) 16.11.2009, 8DL-Betow Detection Limit, Arsenic-8DL [LOQ- 6.0] BAP-8DL [LOQ- 1.0], Lead-BDL [LOQ-1.0], N.A.-Not Applicable, AFR-Average flow Rate, AAQMS-Amblent Air Quality Manitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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

Test Report

issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Report No.: NL/100003346, 3392, 3415, 3463, 3488, 3545, 3570, 3632

Test Report Date: 14/05/2020

Sample Particulors

Nature of the Sample Sampling Location

Purpose of Monitoring Method of Sampling

Monitoring Canducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-2

: To Check the Pollution Load

: IS 5182 (Part 14)

; Mr. Animesh Jha

; 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR of RDS (m3/min)	_	Po	arameter	-
		(110,71111)	Nickel (as Ni), ng/m³	Arsenic (os As), ng/m³	Benzo(a)pyrene (as BAP*), ng/m³	Lead (as Pb), µg/ m³
02/03/2020	10:15	1,10	3,827	BDL	BDL	BDL
06/03/2020	09:55	1.20	2.982	BDL	BDL	BDL
09/03/2020	10:05	1,16	4,018	BDL	BDL	BDL
13/03/2020	10:20	1,12	4.126	BOL	BDL	BDL
16/03/2020	09:57	1.10	5,018	8DL	BDL	8DL
20/03/2020	10:10	1.16	4.725	BDL	BDL	BDL
26/03/2020	10:25	1.12	3,733	BDL	BDL	BDL
31/03/2020	10:30	1.20	4.928	BDL	BDL	BDL
National Ambient A Standards (2009)	ir Quality A	Nonitoring	20	06	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

Remark:

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^{*}NAAQ\$ = National Ambient Air Quality \$landards; \$chedule-Yii, iRule 3 (3B)], iPart-il-sec.-3(iiI 16.11.2009, 8DL-Below Detaction Limit, Arsenic-8DL (LOQ-6.0) BAP-8DL (LOQ-1.0], Lead-BDL (LOQ- 1.0), N.A.-Not Applicable, AfR-Average flow Rale, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within three days after Receipt.



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Report No.: NL/100003347, 3393, 3416, 3464, 3489, 3546, 3571, 363

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Test Report Date: 14/05/2020 Distt, Bhatinda, Punjab, India 🕟

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitaring

Method of Sampling Manitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-3

: To Check the Pollution Load

: IS 5182 (Part 14) : Mr. AnimeshJha

: 24 Hrs.

Anolysis Report

Date of Sampling	Time	AFR of RDS (m3/min)	-		Parameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP*), ng/m³	Lead (as Pb), μg/ m³
02/03/2020	10:30	1.10	4.928	BOL	BDL	BDL
06/03/2020	10:05	1.11	3,827	BDL	BDL	BDL
09/03/2020	10:20	1.12	4.018	8DL	BDL	BDL
13/03/2020	10:35	1.16	4.019	BDL	BOL	BDL
16/03/2020	10:18	1.20	4.625	BDL	BDL	BDL
20/03/2020	10:25	1.14	3.827	BDL	BDL	BDL
26/03/2020	10:40	1.22	4.162	BDL	BDL	BDL
31/03/2020	10:45	1.11	4.928	8DL	BDL.	BDL
National Ambient A Standards (2009)	ir Quality M	Nonitoring	20	06	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

Remarko

*NAAQ\$ - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (38)), [Part-li-sec.-3(i)] 16.11.2009, BDL-Below Detection Limit, Argenic-801, [LOQ- 6.0] BAP-BDL [LOQ- 1.0], Lead-BDL [LOQ-1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS-Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullakhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Report No.: NL/100003348, 3394, 3417, 3465, 3490, 3547, 3572, 3634

Test Report Date: 14/05/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Method of Sampling

Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-4

: Ta Check the Pollution Load

; IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR of RDS (m3/min)		Po	rameter	
			Nickel (as Ni), ng/m³	Arsenic (as As), ng/m³	Benzo(a)pyrene (as BAP*), ng/m³	Lead (as Pb), µg/ m³
02/03/2020	10:40	1.12	4.019	BDL	BDL	BDL
06/03/2020	10:15	1.10	3.928	BDL	BDL	BDL
09/03/2020	10:30	1.00	3.827	BDL	BDL	BDL
13/03/2020	10:50	1.14	2.872	8DL	BDL	BDL
16/03/2020	10:29	1.10	4.018	BDL	-BDL	BDL
20/03/2020	10:37	1.14	3.928	BDL	BDL	BDL
26/03/2020	10:54	1.12	4,827	BDL	BDL	BOL
31/03/2020	10:58	1.12	3.019	BDL	BDL	BDL
National Ambient Ai Standards (2009)	ir Quality N	Monitoring	20	06	01	01
Test Method			AAS Method	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

*NAAQS - Notional Ambient Air Quality Standards; Schedule-VII. (Rule 3 (3B)). [Part-II-sec. 3(i)] 16.11,2009, BDL-Belay Detaction Limit, Argenic-8DL [LOQ- 6.0] 8AP-8DL [LOQ- 1.0], Lead-BDL [LOQ-1,0], N.A.-Not Applicable, AFR-Average Flow Rate, AAOMS-Ambient Air Quality Maniforms Station, (N.A.-Not Applicable, Sample analysed within Three days ofter Receipt.

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Tajuka Talwandi Sabo

Distt.Bhatinda, Punjab, India

Report No.; NL/100003349, 3395, 3418, 3466, 3491, 3548, 3573, 3635

Test Report Date: 14/05/2020

Sample Particulars

Nature of the Sample

Sampling Location

Purpose of Monitoring

Methad of Sampling

Manitoring Conducted By

Sampling Duration (Hrs.)

: Amblent Air Quality Monitoring

: Ambient Air Quality Manitoring Station (AAQMS)-5

: To Check the Pollution Load

; IS 5182 (Part 14)

: Mr. AnimeshJha

: 24 Hrs.

Analysis Report

Date of Sampling	Time	AFR of RDS (m3/min)		Pa	rameter	
			Nickel	Arsenic (as As),	Benzo(a)pyrene	Lead
			(as NI),	ng/m ³	(as BAP*),	(as Pb),
			ng/m³		ng/m³	µg/ m³
02/03/2020	10:50	1,12	3.029	BDL	BDL	8DL
06/03/2020	10:26	1.00	3.928	BDL	BDL	BDL
09/03/2020	10:45	1.10	4.192	BDL	BDL	BÖL
13/03/2020	11:03	1.02	4.431	BDL	BDL	BDL
16/03/2020	10:40	1.11	3.917	BDL	BDL	BDL
20/03/2020	10:45	1.12	3.192	BDL	BDL	BDL
26/03/2020	11:05	1.14	4.121	8DL	8DL	BDL
31/03/2020	11:10	1.12	4,321	BDL	BDL	BDL
	ir Quality N	l Nonitoring	20	06	01	10
Test Method			AAS *	AAS Method	IS:5182 (P-12)	IS:5182 (P-22)

Remark:

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (38]], (Part-II-sec.-3(I)) 16.11.2007, BDL-Below Detection Limit, Arsenic-BDL [LQQ-6.0] BAP-8DL (LQQ-1.0), Lead-8DL [LQQ-1.0], N.A.-Not Applicable, AFR-Average Flow Rate, AAQMS Amblent Air Quality Monitoring Station, N.A.-Not Applicable, Sample Analysed within three days after Receipt.

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com



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Report No.: NL/100003350, 3396, 3419, 3467, 3492, 3549, 3574, 3636

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt.Bhatinda, Punjab, India

Test Report Date: 14/05/2020

Sample Particulars

Nature of the Sample Sampling Location Purpose of Monitoring Method of Sampling Monitoring Conducted By

Sampling Duration (Hrs.)

: Ambient Air Quality Monitoring

: Ambient Air Quality Monitoring Station (AAQMS)-6

: Ta Check the Pollution Load

: IS 5182 (Part 14) : Mr. Animesh Jha

: 24 Hrs.

Analysis Report

Date of	Time	AFR of RDS	AFR of				P	'arameter	r			
Sampling		(m3/min)	(m3/hr)	Ni ng/m³	As ng/m³	BaP', ng/m³	Pb µg/ m³	PM _{2.5} µg/m ³	PM ₁₀ µg/m³	SO₂ µg/m³	NO₂ µg/m³	mg/m³
02/03/2020	11:10	1.12	0.98	2.837	BDL	BDL	BDL	78.1	109.2	27.3	45.2	0.726
06/03/2020	10:40	1.00	1.00	3.928	BDL	BDL	BDL	69.2	102,1	23,1	40.1	0.871
09/03/2020	10:53	1.10	0.99	2.918	BDL	BOL	BDL	63.4	103.2	26.5	35.6	0.162
13/03/2020	11:14	1.02	0.98	4.271	BOL	BDL	BOL	64.8	112.1	23.2	48.9	0.423
16/03/2020	10:52	1.11	1.00	3.726	BDL	BDL	BDL	65.2	113.4	26.7	31.2	0.531
20/03/2020	10:56	1.12	1.04	2.837	BDL	BOL	BDL	70.5	120.3	27.6	29.3	0.687
26/03/2020	11:15	1.14	0.98	3.927	8DL	8DL	BDL	65.1	119.2	32.1	30.2	0.643
31/03/2020	11:25	1.12	0.97	4.172	BDL	BDL	BDL	61.2	110.9	30.4	34.5	0.691
Natianal Am itandards (2		Quality Mo	nitoring	20	06	01	01	60	100	80	80	04
Test Methad	,			AAS Metho d	AAS Method	IS:518 2 (P-12)	IS:518 2 (P-22)	Gravi metric	IS:518 2 (P-23)	IS:518 2 (P-2)	IS:518 2 (P-6)	NDIR Metho d

Remark:

*NAAQS - National Ambient Air Quality Standards; Schedute-VII, [Rufe 3 (38)], [Part-It-sec.-3(ii)] 16.1 1.2007, BDL-Befow Defection Limit, Assente-BDL [LOQ- 6.0] BAP-BDL [LOQ- 1.0] Lead-BDL [LOQ- 1.0], N.A.-Not Applicable, Sample Analysed within Three days after Receipt.

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

C+91-191-2465597

info@nityalab.com @ www.nityalab.com

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/10/1003639 Test Report Date: 14/05/2020

Sample Particulars:

Nature of the Sample Date of Monitoring Purpose of Monitoring

Place of Monitoring Monitoring Conducted By

Protocol Used

: Ambient Noise

: 30/03/2020

: To Check the Pallution Load

: HMEL Refinery ; Mr. Animesh Jha

: IS: 9989

Analysis Report

Location	Test Result dB(A) Day Time	Test Result dB(A) Night Time
ble Limit in *db(A) Leq For Industrial Area	75 dB(A)	70 dB(A)
Near Refinery Main Gate	73.2	65.2
Near Fire Water Reservoir	69.3	63.2
Near Road Crude Oil Tanks	71,2	60.3
Neor ETP and Flare	70.1	61.2
Near Storm Water Pond East Side	63.2	59.8
Near Sulphur Yard South East Side	65.4	60.1
Near Rail Loading Dispatch South East Side	70,2	59.8
Near CPP North East Side	72.1	61.2
Near Paly Propylene Dispatch Area	71.2	62.4
Near Ecological Pond Area	70.2	61.5
	ble Limit in *db(A) Leq For Industrial Area Near Refinery Main Gate Near Fire Water Reservoir Near Road Crude Oil Tanks Near ETP and Flare Near Storm Water Pond East Side Near Sulphur Yard South East Side Near Rail Loading Dispatch South East Side Near CPP North East Side Near Paly Propylene Dispatch Area	ble Limit in *db(A) Leq For Industrial Area 75 dB(A) Near Refinery Main Gate 73.2 Near Fire Water Reservoir 69.3 Near Road Crude Oil Tanks 71.2 Near ETP and Flare 70.1 Near Storm Water Pond East Side 63.2 Near Sulphur Yard South East Side 65.4 Near Rail Loading Dispatch South East Side 70.2 Near CPP North East Side 72.1 Near Paly Propylene Dispatch Area 71.2

*dB (A) Lea denotes the time weighted average of the level of sound in decibel on scale "A" which is relatable to homein heating.

CPCB = Central Pollution Control Board

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

Area Code	Category of Area	Limits	Limits dB (A) Leq						
	,	Day Time (6AM – 10PM)	Night time (10PM - 06AM)						
A	Industrial Area	- 75	70						
В	Commercial Area	65	55						
С	Residential Area	55	45						
D	Silence Zone	50	40						

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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

TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.

: NL/100003672

Test Report Date

: 14/05/2020

Sample Particulars:

Nature of the sample : Stack Gas Emission

: 27/03/2020 Date of Sampling Time of Sampling :11:00 Test Started on : 07/05/2020 Test Completed On : 13/05/2020

Purpose of monitoring : To Check the Pollution Load

Sampling Location : SRU 524 ; IS: 11255 (P-7) Sampling method Normal operating schedule : As per requirement

: Mild Steel Type of stack /duct

Stack height from Ground Level (m) :100 Diameter of the stack(m) : 2.0 Sampling duration (min) :30

Observations:

Flue Gas Temperature °C :168 Ambient Air Temperature °C : 25 Flue Gas Velocity (m/s) : 13.21

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits for 100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NO _x)	97.87	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	64.87	100	IS-13270
3	Oxides of Sulphur (as SOx)	151,98	N.A.	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	8DL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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LQQ-Limit of Quantification. The lowest concentration of a substance that can be occurately measured under specified experimental conditions.



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💡 43, Sector-A1 Ext., Bhalla Enclave, Channi

Himmat, Jammu-180 015, J&K (UT), India

Q+91-191-2465597

📷 info@nityalab.com 💿 www.nityalab.com

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TEST REPORT

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluko Talwandi Sabo

Test Report Date : 14/05/2020

Report No.

: NL/100003673

Distt. Bhatinda, Punjab, India

Sample Particulars:

: Stack Gas Emission Nature of the sample

Date of Sampling : 27/03/2020 Time of Sampling : 12:30 Test Started on : 07/05/2020 : 13/05/2020 Test Completed On

: To Check the Pollution Load Purpose of monitoring

Sampling Location : SRU 525 Sampling method : IS: 11255 (P-7) : As per requirement Normal operating schedule : Mild Steel

Stack height from Ground Level (m) : 100 Diameter of the stack(m) : 2.0 : 30 Sampling duration (min)

Observations:

Type of stack /duct

Flue Gos Temperature °C : 171 Ambient Air Temperature °C :25 : 12.92 Flue Gas Velocity (m/s)

Analysis Report

Sr. No.	Parameters	Results (mg/Nm³)	Limits for 100 % Fuel Gas (mg/Nm³)	Test Method
1	Oxide of Nitrogen (as NO _x)	43.29	250	IS-11255(P-7)
2	Carbon Monoxide (as CO)	36.87	100	IS-13270
3	Oxides of Sulphur (as SOx)	161,29	NA	IS-11255 (P-2)
4	Hydrogen Sulphide (as H ₂ S)	BDL(LOQ-0.1)	10	IS:11255 (P-4)

Remark: Not Detected

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Report No.; NL/100003656-3666 Test Report Date: 14/05/2020

Sample Particulars:

Nature of the Sample & No. of Samples

Sample Quantity & Packaging

Test Started an Method of Sampling Date of Sampling Sampling Conducted By

Test Completed

: Ground Water & Eleven Samples

: 2.0 Liter, Pet Bottle : 07/05/2020

: 13/05/2020 : SOP/B/D-3 : 31/03/2020

: Mr. Manmohan Singh

Analysis Report

Para	meter	Нq	Odour -	Color	Taste	Temper alure	Turbidity	TDS	Alkalinity as (CaCO ₃)	Total Hardness as (CaCO3)	Chlori des	Fluorides
			-			Location						
G	TW	7.21	Agreeable	<5	Agreeable	25.6	<1	652	156	289	191.1	0.87
G	W2	7.43	Agreeable	<5	Agreeable	26.4	<1	582	194	234	246.3	0.83
G	W3	7.18	Agreeable	<5	Agreeable	25,6	<1	592	291	273	187.1	0.81
G	W4	7.25	Agreeable	<5	Agreeable	25.6	<1	681	245	247	287.2	0.93
G	W5	7.40	Agreeable	<5	Agreeable	26.7	<1	531	219	274	143,5	0.72
G	W6	7.36	Agreeable	<5	Agreeable	27.6	<1	582	256	324	142.2	0.69
G	W7	7.26	Agreeable	<5	Agreeable	26.5	<1	481	210	215	178.9	0.89
G	W8	7.20	Agreeable	<5	Agreeable	27.0	<1	435	231	231	187.0	0.83
G	W9	7.16	Agreeoble	<5	Agreeable	27.4	<1	532	198	243	167.7	0.81
G	W10	7,36	Agreeable	<5	Agreeable	27.2	<1	526	201	315	193.2	0.49
G	W11	7.17	Agreeable	<5	Agreeable	27.1	<1	528	287	311	152.1	0.79
IS 10 50	Desi rabi e	6.5-8.5	Agreeable	5	Agreeable	-	1	500	200	200	250	1.0
0	Per mi ssibl e	6.5-8.5	Agreeable	15	Agreeable	•	5	2000	600	600	1000	1.5
Pro	tocol	IS:3025 (P-11)	IS:3025 (P-5)	IS:3025 (P-4)	IS:3025 (P-7)	IS:3025 (P-9)	APHA 23rd Ed.	IS:3025 (P-16)	IS:3025 (P-23)	IS: 3025 (P-21)	IS:3025 (P-21)	APHA 23 rd Ed.

GW1: Near Storm Water Pond-South East Side, GW2: Near Storm Water Pond - North East Side, GW3: Near Ecological Pand West Side, GW4: Near Ecological Pond South East Side GWS: Near Solar Pond South East Side of Water Block Area, GW6: Near Solar Pond South East Side of Water Block Area, GW7: Near RO/DM Plant East Sk AreaGW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area South Side, GW11: Near ETP South Side

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+91-129-2241021

+91-9013591021, +91-9013552273

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Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt, Bhatinda, Punjab, India

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

Report No.: NL/100003656-3666 Test Report Date: 14/05/2020

Analysis Report

Para	ameter	Calciu m as Ca	Magn esium as Mg	Sulph ate	Nitrate s	Phenolic Compou nds	Iron (as Fe)	Mercury (as Hg)	Zinc (as Zn)	Cadmi vm (as Cd)	Chromiu m (as Cr)	Arsenic (as As)
G	5W1	56.29	35.48	150.18	17.8	BDL	0.32	BDL	BDL	BDL	BDI.	BOL
G	SW2	43.18	18.29	120.4	16.8	8DL	0,39	8DL	BDL	BDL	BDL	BDL
G	SW3	56.19	32.48	123,19	17,2	BDL.	0,41	BDL	BDL	BDL	BDL	BDL
G	GW4	50.18	34.18	134.2	16.8	BDL	0,54	BDL	BDL	BDL	BDL	8DL
G	GW5	40.16	29.19	128.8	21,4	BDL	0,43	BDL	8DL	BDL	BDL	BDL
0	SW6	50.18	31.29	134.2	19.7	BDL	0,37	BOL	BDL	BOL	BDL	BOL
-	GW7	56.48	23.19	129.7	20.1	8DL	0.39	8DL	BOL	BDL	BDL	BDL
	GW8	46.19	36.49	120,1	23.4	BDL	0.41	BDL	BDL	BDL	8DL	BDL
(GW9	52.19	35.39	118,9	21,3	BDL	0,27	BDL	BDL	BDL	BDL	BDL
G	W10	60.18	40.17	134.7	22.5	BDL	0.34	8DL	BDL.	BDL	BDL	8DL
G	SW11	50.18	32.18	139.6	19.8	BDL	0.31	BDL	8DL	BDL	BDL	BDL
IS 10	Desi rable	75	30	200	45	0.001	1	0.001	5	0.003	0.05	0.01
50 0	Permi ssible	200	100	400	No Relaxati on	0.002	No Relaxati on	No Relaxation	15	No Relaxati on	No Relaxatio n	0,05
Pr	otocol	IS:3025 (P-40)	IS:3025 (P-46)	APHA 23 rd Ed.	IS:3025 (P-34)	15:3025 (P-43)	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23™ Ed.	APHA 23rd Ed.	APHA 23 rd Ed.

Remark:

GW1: Neor 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 Side GW5: Near Solar Pond South East Side - North East Side of Water Black Area, GW7: Near RO/DM Plant East Side And GW8: Near Secured Landfill Area North Side, GW9: Secured Landfill Area South Side, GW11: Near ECOLOGICAL Side And GW8: Near Secured Landfill Area North Side, GW9: Sec

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! +91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

nww.nityalab.com



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 43, Sector-A1 Ext., Bhaila Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo Distt. Bhatinda, Punjab, India

Test Repart Date: 14/05/2020

Report No.: NL/100003656-3666

Analysis Report

Para	meter	Lead (as Pb)	Boron (as B)	Cyanid e (as CN*)	Seleniu m (as Se*)	RFC	Polycyclic Aromatic Hydrocarbo ns (PAH*)	Mineral Oli*	Anionic Detergent*	Aluminum (as Al)
G	W1	BDL	0.43	BDL	BDL	BDL	BDL	BDL.	BDL.	BDL
G	W2	BOL	0.28	BDL	BDL	BDL	BDL	BDL	BDL	BDL
G	w3	BDL	0.32	BDL	BDL	BDL	BDL	BDŁ	BDL	BDL
G	W4	BDL	0.29	BDL	BDL	BDt.	BDL	BDL	BDL	BDL
G	:W5	BDL	0.32	BDL	8DL	BDL	BOL	8DL	BDL	8DL
G	6W6	BDL	0.45	BDL	BDL	BDL	BDL	BDL	8DL	BDL
G	W7	BDL	0.26	BDL	BDL	BDL	BDL	BDL	BDL	BDL
G	SW8	BDL	0.32	BDL	BDL	BDL	BDL	BDL	BDL	BDL
G	W9	BDL	0.38	BOL	BDL	BDL	BDL	BDL	BDL	BDL
G	W10	BDL	0.31	BDL	BDL	BDL	BDL	BDL	BDL	8DL
G	W11	BOL	0.43	BDL	BD1.	BDL.	BDL	BDL	BDL	BDL
IS	Desl rable	0.01	0.5	0.05	0.01	0.2	0.0001	0.5	0.2	0.03
10 50		No	1,0	No	No	1.0	No	No	1,0	0.2
0	Permi ssible	Relaxat Ion								
Pro	otocol	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd Ed.	APHA 23 rd 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 Side GW5: Near Solar Pond South East Side - North East Side - No

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Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt, Bhatinda, Punjab, India

Ref. No.; NL/100003641-3655 Test Report Date: 14/05/2020

Sample Particulars:

Nature of the Sample

Date of Monitoring

Purpose of Monitoring

Place of Monitoring

Monitoring Conducted By

Protocol Used

: Volatile Organic Carbon

: 30/03/2020

: To Check the Pollution Load

: HMEL Refinery

: Mr. Animesh Jha

: Portable PID Based Gas Detector for VOC's - Honeywell RAE

Analysis Report

Sr. No.	Locations	Test Results (PPM)
3	Near ETP	0.3
2	Near Rail Gantry	BDL
3	Near Road Gantry	BDL
4	Battery limits of CDU/VDU	BDL
5	Battery limits of FCCU	BDL
6	Battery limits of DHDT	BDL
7	Battery limits of VGO-HDT	BDL
8	Battery limits of MS Block	BDL
9	Battery limits of DCU	BDL
10	Product Intermediate Storage Tanks Down Wind Direction	BDL
11	Product Intermediate Storage Tank UP Wind Direction	BDL
12	Near HPCL Product Dispatch Pumps	0.4
13	Battery limits of PPU	BDL
14	Near Crude Oil storage Tanks	0.2
15	Battery Limits of SRU Block	BDL

Remark:

8DL-Below Detection Limit (LOG-0.1)

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CORPORATE OFFICE & CENTRAL LABORATORIES:



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

Test Report

Issued to: HPCL-Miltal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.: NL/10003667
Test Report Date: 14/05/2020

Sample Particulars:

Sample Quantity & Packaging

; 2,0 Liter, Pet Bottle

Test Test Started on Test Completed : 07/05/2020 : 13/05/2020

Method of Sampling

; SOP/B/D-3

Date of Sampling

: 31/03/2020

Sampling Conducted By Place of Sampling

: Mr. Monmohan Singh : W-1: ETP Outlet, Inside GGSR

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limits	Protocol	
			W-1	Lilling		
1	Hq		7.72	6.0-8,5	I\$:3025 (P-11)	
2	Total Suspended Solids (TSS)	mg/L	19.3	20.0	IS:3025 (P-17)	
3	Chemical Oxygen Demand (COD)	mg/L	94,29	125.0	IS:3025 (P-58)	
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	13.87	15.0	IS:3025 (P-44)	
5	Oil & Grease (O&G)	mg/L	BDL	5,0	IS:3025 (P-39)	
6	Phenolic Compounds(C6H5OH)	mg/L	0.31	0.35	IS:3025 (P-43)	
7	Sulphide (S)	mg/L	0.42	0.5	IS:3025 (P-29)	
8	Ammonia (N)	mg/L	8,29	15.0	IS:3025 (P-34)	
9	Total Kjeldahl Nitrogen (NH3)	mg/L	19.4	40	IS:3025 (P-34)	
10	Phosphate	mg/L	1.2	3.0	IS:3025 (P-31)	
11	Cyanide (CN*)	mg/L	BDL	0.20	APHA-23 rd Ed.	
12	Total Chromium	mg/L	BDL	2.0	IS:3025 (P-52)	
13	Chromium Hexavalent (Cr+6)	mg/L	BDL	0.1	IS:3025 (P-52)	
14	Copper (Cu)	mg/L	BDL	1.0	APHA -23rd Ed.	
15	Lead (Pb)	mg/L	BDL	0,1	APHA-23 rd Ed.	
16	Mercury (Hg)	mg/L	BDL	0.01	APHA-23 rd Ed.	
17	Zinc (Zn)		BDL	5.0	APHA-23 rd Ed.	
18	Nickel (Ni)	_mg/L	BDL	1.0	APHA-23 rd Ed.	
19	Vanadium (V*)	mg/L	BDL	0.2	APHA-23 rd Ed.	
20	Benzene*	mg/L	BDL	0.1	APHA-23 rd Ed.	
21	Benzo* (a)-Pyreen	mg/L	BDL	0.2	APHA-23rd Ed.	



(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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Il you have any complaint/sectionck regarding the sample collection/testing/test report, please send an email al <u>intofmitypiab, com</u> and call at +91-191-2465597, +91-9873924093

CORPORATE OFFICE & CENTRAL LABORATORIES :-



NITYA LABORATORIES

9 43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

U+91-191-2465597

info@nityalab.com 🛭 www.nityalab.com

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

Test Report

issued to: HPCL-Mittal Energy Limited

Village Phullokhari, TalükaTalwandi Sabo

Distt.Bhatinda, Punjab, India

Report No.; NL/10003668 Test Report Date: 14/05/2020

Sample Particulars:

Nature of the Sample

Sample Quantity & Packaging

Test Test Started on Test Completed Method of Sampling Date of Sampling

Sampling Conducted By Place of Sampling

: STP Outlet Refinery : 2.0 Liter, Pet Bottle

: 07/05/2020

: 13/05/2020 : SOP/B/D-3 : 31/03/2020

: Mr. Manmohan Singh : W-2: STP Outlet, Inside GGSR

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Standards	Protocol	
			W2			
1	рН	-	7.82	6.5 to 9.0	IS:3025 (P-11)	
2	Temperature	°C	26.8		IS:3025 (P-9)	
3	TSS	mg/l	8.9	≤10mg/l	IS:3025 (P-17)	
4	COD	mg/l	41,3	≤50mg/l	IS:3025 (P-58)	
5	BOD	mg/l	7.2	≤10mg/	IS:3025 (P-44)	
6	0&G	mg/l	BDL	≤5mg/l	IS:3025 (P-39)	
7	Ammonical Nitrogen as N*	mg/l	4.76	≤5mg/l	IS:3025 (P-34)	
8	N-total*	mg/l	7.54	≤10mg/l	IS:3025 (P-34)	
9	PO4-P*	mg/l	1.76	≤2mg/l	IS:3025 (P-31)	



(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES :-



NITYA LABORATORIES

43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India

+91-191-2465597

🜃 info@nityalab.com 🐶 www.nityalab.com

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

Test Report

Issued to: HPCL-Mittal Energy Limited

Village Phullokhari, Taluka Talwandi Sabo

Distt. Bhatinda, Punjab, India

Report No.; NL/10003671 Test Report Date: 14/05/2020

Sample Particulars:

Nature of the Sample

: ETP Outlet

Sample Quantity & Packaging

: 5.0 Liter, Pet Bottle

Test Storted on

: 07/05/2020

Test Completed

: 13/05/2020

Method of Sampling

: SOP/B/D-3

Date of Sampling

: 31/03/2020

Sampling Conducted By

: Mr. Manmohan Singh

Place of Sampling

: W-5: ETP Outlet, Inside GGSR

Analysis Report

Sr. No.	Parameters	Unit	Test Result	Protocol
			W5	
1	Bioassay Toxic Test	%	98 % survival of fish after 96 hours in 100 % effluent	IS:6582 (P-1)

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

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If you have any complaint/leedback regarding the sample callection/lesting/lest report, please send on small at intrinsivation.com and call of +91-191-2465577, +91-9873924093

CORPORATE OFFICE & CENTRAL LABORATORIES :-

Annexure-II

	Annexure-II								
Ambient Air Quality Data from Oct'2019 to March'2020									
Monthly Average Values Oct.'2019 to March'2020									
Parame	ter	so₂	NO,	co	0,	PM ₁₀	PM _{2.5}	NH,	BENZENE
Station No. Month		μg/m3	µg/m3	mg/m3	µg/m3	µg/m3	μg/m3	μg/m3	μg/m3
AAQMS 1	}	7.33	27.05	0.69	40.14	85.41	48.59	21.51	0.55
AAQM52	Oct-10	16.97	22.80	1.26	52.15	89.54	52.57	22.84	0,84
AAQMS3	Oct-19	25.89	20.55	1.01	36.55	70,81	40.70	22.81	1.00
AAQM54	- 1	6.49	23,49	0.52	40.60	80.85	50.85	21.06	1.03
AAQMS 5		11.54	20.43	1.40	47.38	91.24	48.95	21.93	0.33
Min		6.49	20.43	0.52	36.55	70.81	40,70	21.06	0.33
Max		25.89	27.05	1,40	52.15	91.24	52.57	22.84	1.03
Avg		13.64	22.86	0.98	43.36	83.57	48.33	22.03	0.75
CPCB II		80	80	2	100	100	60	400	5
								100	
AAQMS 1		7.66	28.30	0.80	37.03	180.38	129.70	19.66	0.66
AAQMS 2		15.61	23.06	1.12	44.53	172.33	98,90	21,66	0,95
AAQM5 3	Nov-19	19.20	20.24	1.01	36,94	106.26	58.75	22.83	0.98
AAQMS 4		10.13	23.73	0.57	57.65	115.16	88.29	21.18	1.13
AAQMS 5		5.94	20.32	1.39	27.42	148.42	102.28	22.69	0.32
		T	L-1.52			12.00.00	374.40		
Min)	5.94	20.24	0.57	27.42	106,26	58.75	19.66	0.32
Max		19.20	28.30	1.39	57,65	180.38	129.70	22.83	1.13
Ave		11.71	23.13	0.98	40.71	144.51	95.58	21.60	0.81
CPCB I		80	80	2	100	100	60	400	5
0, 0.01								1	
AAQMS 1		7.28	28.80	1.02	29.11	105.75	80.43	19.40	1.64
AAQMS 2		10.59	22,25	1.37	41,92	107,35	62.61	19.92	2.13
AAQMS 3	Dec-19	11,14	21,35	1.01	36.76	71.95	37.63	21.53	1.15
AAQMS 4		10,60	17.49	0.58	42.15	76.94	36.78	25.42	1.09
AAQMS 5		5.87	20.16	1.39	26.10	90.35	65,34	22.85	0,51
			,						
Mir	1	5.87	17.49	0.58	26.10	71.95	35.78	19.40	0.51
Ma	х	11.14	28.80	1.39	42.15	107.35	80.43	25.42	2.13
Avj	3	9.10	22.01	1.07	35.21	90,47	56.56	21.82	1.30
CPCB I		80	80	2	100	100	60	400	5
AAQM5 1		7.48	28.97	0.82	28.98	79.26	52.52	19.19	1.79
AAQM5 2	1	9.61	19.60	1.47	48.02	63.34	43.16	21.92	1.96
E 2MDAA	Jan-20	11.94	19.48	1.02	37.59	43.37	31,29	20,20	1.36
AAQMS 4		9,86	19,02	0.49	35.56	42.89	29.80	25.33	1.52
AAQMS 5	<u> </u>	6.47	20,25	1.71	26.62	67.56	44.85	22.61	0.83
								-	
Mi	Б	6.47	19.02	0.49	26.62	42.89	29.80	19.19	0.83
Ma		11.94	28.97	1.71	48.02	79.26	52.52	25.33	1.96
Av		9.07	21.46	1.10	35.36	59.28	40.32	21.85	1.49
CPCB	limit	80	80	2	100	100	60	400	5
AAQM51	1	7.55	24.32	0.54	29.52	81.46	49.11	18.38	1.81
AAQM5 2	1	9,34	20,44	1.13	35.24	71.47	41.92	24.79	1.41
AAQM53	Feb-20	11.16	16.96	1.01	40.92	51.96	30.37	20.26	1.67
AAQMS 4	1	8.99	19.03	0.41	43.19	56.33	22.11	23,85	1.95
AAQMS 5		6.61	21.88	1.34	30,72	57.03	35.90	23.99	0.71
MI		6.61	16.96	0.41	29.52	51.96	22.11	18.38	0.71
Ma		11.16	24.32	1.34	43.19	81.46	49.11	24.79	1,95
Av		8.73	20.53	0.69	35.92	63.65	35.88	22.25	1.51
CPCB	limit	80	80	2	100	100	60	400	5_
	,	1-2	T 45	T 4	1 44 41	1	1 42.50	1	1
AAQMS1	-	6.75	19.29	0.65	29.84	50.06	17.81	12.84	1.84
AAQM5 2		8.98	16.90	0.87	42.66	40.70	25.33	20.69	1.06
AAQM53	Mar-20	-	21.32	0.98	43.83	30.43	16.44	26.35	1.98
AAQM5 4	1	9,19	20.40	0.43	35.05	47.04	25.31	24.68	1.76
AAQM55 5.48 20.81 1.24 31.05 50.40 23.11 23.09 0.78									
Min 5.48 16.90 0.43 29.84 30.43 16.44 12.84 0.78									
[[V]	5,48 11.60	16.90	0.43	29.84	30.43	16.44	12.84	0.78	
			21.32	1.24	43.83	50.40	25.33	26.35	1.98
Ma		+		+	_	_	_	_	1 10
Av CPCB	E	8.40	19.74 80	0.83	36.48 100	43.73 100	21.50 60	21.53 400	1.48

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 $\mu g/m^3$ to 325.7 $\mu g/m^3$ 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 $101.8\,\mu g/m3$ to $194\,\mu g/m3$ as per baseline data for year 2010.

Annexure-III

Activities undertaken for improving socio-economic condition in the surrounding				
	area	as from Oct'2019 to Mar'2020		
CSR Pillars	Beneficiaries	Remarks		
Skill Development	828	Spoken English Course, LMV & LTV training to vicinity youth and NSDC implemented Training programs		
Community Healthcare & Hygiene	18353	General Health Checkup Camp; Eye Checkup Camp; Gynecology Checkup Camp; Orthopedic checkup camp; Medical Equipment's to Govt. Hospitals; Support to "Vanaprastha Ashram", Provide Hearing Aid & Tricycles for Specially abled People; Construction of Toilets under Swatchh Bharat mission; Drinking water arrangement by installation of RO Plant & water Coolers at community, religious places; Fitness Talent hunt; Organized Health Camps through Ladli Foundation; Street Vendor Training on Hygiene; Support to District administration & Religious places to address COVID-19 Pandemic		
Livelihood and Sustainable Development	16238	Women Entrepreneurship Development; Women Empowerment initiatives through HIH; Animal Health Checkup Camps; Organized Livestock breed competition to promote Diary Farming; Training - Sewing Machine Operator; Training - Beauty Therapist; Training - Dairy Farming; Support of Liquid Nitrogen Containers to Animal Husbandry department; Training- Organic Farming		
Total	35419			

Photographs for activities undertaken for improving socio-economic condition in the surrounding areas from Oct'2019 to Mar'2019

Community Healthcare & Hygiene (Health Check Up Camp)



Livelihood & Sustainable Development
Dairy Development
(Animal Health Check Camp)



Livelihood and Sustainable Development (Women Empowerment initiatives)



Livelihood & Sustainable Development
Dairy Development
(Training - Dairy Farming)



Skill Development (LMV & LTV Training)



Skill Development (NSDC implemented programs)



Skill Development (Spoken English)



Community Healthcare & Hygiene (Health Camps through Ladli Foundation)



Community Healthcare & Hygiene (Distribution of Hearing Aid & Tricycles for Specially abled People



Annexure-IV

Activities undertaken for community welfare including eco-developmental measures in the surrounding areas from Oct'2019' to Mar'2020				
CSR Pillars	Beneficiaries	Remarks		
Community infrastructure & Environment	9341	Construction, Repair & maintenance of common/community places of villages; Supply of concrete benches, Provide Tree Guards; Furniture and Fixtures to Community etc.; Providing 5 Happy Seeder Machines with Tractor Trolley to avoid stubble burning; Support to HPCL- Mittal Foundation for Hospital Project & Other CSR Activities		
Education Development	10150	Construction, Repair and Maintenance of School Building and Toilets for Schools; Support of Fixture and Furniture to Govt. Schools; Safe Drinking Water Arrangement in Govt. Schools; Support for Library Books to Govt. Schools; Distribution of Bicycles to Girls of Govt. School; Distribution of school uniform and stationery; Health and Safety awareness program for school teachers and students; Scholarship to Meritorious Students of Govt. Schools; Support of Sewing Machines to Girls College; Support to Bharat Scouts & Guides Punjab; Support to Military Literature Festival Chandigarh		
Total	19491			

Photographs for activities undertaken for community welfare including ecodevelopmental measures

Community Infrastructure and Environment (Construction of streets)



Community Infrastructure and Environment (Tree Guards & Concrete Benches)



Education Development (Distribution of school uniform and stationery)



Education Development



Education Development (Construction of Mid-day meal shed in Govt. Schools)



Education Development (Health and Safety awareness program)



Education Development (Support of Fixture and Furniture to Govt. Schools)



Community Infrastructure and Environment (Distribution of Happy Seeder & Tractor)



Community Infrastructure and Environment (Tree Plantation)



Community Infrastructure and Environment (Happy Seeder)



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



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 7" 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

Punjab News Paper Ajit, dated 9th Aug'18

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 ਫੱਲੋਕਾਰੀ, ਤਾਲਕਾ-ਡਲਵੰਡੀ ਸਾਬ

ਜ਼ਿਲ੍ਹਾ ਬਠਿੰਡਾ-151301, ਪੰਜਾਬ ਵੱਬਸਾਈਟ : www.hmel.in



ਜਨਤਕ ਸੂਚਨਾ

ਔਚ ਪੀ ਸੀ ਐਲ-ਮਿੱਤਲ ਐਨਰਜੀ ਲਿਮਟਿਡ ਦੁਆਰਾ ਆਮ ਜਨਤਾ ਦੇ ਧਿਆਨ ਵਿਚ ਲਿਆਦਾ ਜਾਂਦਾ ਹੈ ਕਿ ਵਾਤਾਵਰਨ, ਜੰਗਲਾਤ ਅਤੇ ਜਲਵਾਯੂ ਤਬਦੀਲੀ ਮੰਤਰਾਲਾ (ਐਮ ਓ ਈ ਐਫ ਐੱਡ ਸੀ ਸੀ), ਨਵੀਂ ਦਿੱਲੀ ਨੇ ਪੱਤਰ ਨੰਬਰ : ਜੇ-11011/386/2016-l ਏll (i) ਮਿਤੀ 7 ਅਗਸਤ, 2018 ਦੁਆਰਾ ਗੁਰੂ ਗਬਿੰਦ ਸਿੰਘ ਰੀਫਾਇਨਰੀ, ਪਿੰਡ ਫੁੱਲੋਕਾਰੀ, ਤਾਲਕਾ-ਤਲਵੰਡੀ ਸਾਥੋ, ਜ਼ਿਲ੍ਹਾ ਬਠਿੰਡਾ (ਪੰਜਾਬ) ਵਿਖੇ ਫਿਊਲ ਕੁਆਲਟੀ ਅਪਗ੍ਰੇਡੀਸ਼ਨ ਪ੍ਰਾਜੈਕਟ ਲਈ ਵਾਤਾਵਰਨਿਕ ਕਲੀਅਰੇਸ ਪ੍ਰਦਾਨ ਕੀਤੀ ਹੈ।

ਕਲੀਅਰੈੱਸ ਪੱਤਰ ਦੀਆਂ ਕਾਪੀਆਂ ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਰੋਕਬਾਮ ਬੌਰਡ ਕੋਲ ਉਪਲਬਧ ਹਨ ਅਤੇ ਮੰਤਰਾਲੇ ਦੀ ਵੈੱਬਸਾਈਟ <u>http://moef.nic.in</u> 'ਤੇ ਦੇਖੀਆਂ ਜਾ ਸਕਦੀਆਂ ਹਨ।

— ਅਧਿਕਾਰਤ ਸਿਗਨੈਟਰੀ

ਐਚ ਪੀ ਸੀ ਐਲ ਮਿੱਤਲ ਐਨਰਜੀ ਲਿਮਟਿਡ

Annexure-VI

Copy of mail to MoEF&CC for action plan of CER

Jatinder Kumar1

From:

Satish Kumar Kalra

Sent:

Thursday, May 16, 2019 2:56 PM

To:

Sanket Thapar

Cc:

Ravi Deshwal; Jatinder Kumar1; Mainak Ray

Subject:

FW: BS-VI Fuel Quality Upgradation Project at Guru Gobind Singh Refinery, Village

Phulo Khari, Tehsil Talwandi Sabo, District Bhathinda (Punjab) by M/s HPCL-Mittal

Energy Limited (HMEL) - Environmental Clearance- reg.

Attachments:

CER plan BSVI project.docx

From: Satish Kumar Kalra Sent: 06 July 2018 17:07 To: nobi.ep@nic.in

Cc: srivastava <sk.smree66@nic.in>; KS Sitaraman <ks.sitaraman@hmel.in>; Tapash Pramanik

(tapash.pramanik@hmel.in) <tapash.pramanik@hmel.in>

Subject: RE: BS-VI Fuel Quality Upgradation Project at Guru Gobind Singh Refinery, Village Phulo Khari, Tehsil Talwandi Sabo, District Bhathinda (Punjab) by M/s HPCL-Mittal Energy Limited (HMEL) - Environmental Clearance-

reg.

Dear sir,

Please refer trailing mail. As desired please find enclosed year wise Corporate Environment Responsibility (CER) plan for BS-VI Fuel Quality Up gradation Project at Guru Gobind Singh Refinery by M/s HPCL-Mittal Energy Limited (HMEL).

With regards



Satish Kumar Kalra DGM - Technical Services HPCL-Mittal Energy Ltd.

Village- Phullokhari | Taluka- Talwandi Saboo

Bathinda - 151301, Punjab (India)

Phone: +91 1655 272905 Mobile: +91 9988865653 Email: <u>satish.kaira@hmel.in</u>

From: nobi.ep@nic.in [mailto:nobi.ep@nic.in]

Sent: Thursday, July 5, 2018 2:53 PM

To: Satish Kumar Kalra; Tapash Pramanik; KS Sitaraman

Cc: srivastava

Subject: BS-VI Fuel Quality Upgradation Project at Guru Gobind Singh Refinery, Village Phulo Khari, Tehsil Talwandi Sabo, District Bhathinda (Punjab) by M/s HPCL-Mittal Energy Limited (HMEL) - Environmental Clearance- reg.

Sir,

This has reference to your proposal No. IA/PB/IND2/61343/2016 dated 2nd February, 2018 for environmental clearance to the BS-VI Fuel Quality upgradation project at Guru Gobind Singh

Annexure-VII

Copy of Air & Water Consent



PUNJAB POLLUTION CONTROL BOARD

Regional Office, Bathinda (DISTRICT ADMINISTRATIVE COMPLEX, ROOM NO. 401 E - 403 E, 406 E & 418 E, 3RD FLOOR)

Website:- www.ppcb.gov.in

Office Dispatch No:

Registered/Speed Post

Date:

Industry Registration ID:

R12BT144706

Application No:

9511030

To,

Krishan Tuteja Hpcl-mittal Energy Limited,guru Gobind Singh Refinery Project,village Phullokari,taluka Talwandi Saboo,

District Bathinda.

Bathinda, Bathinda-151301

Subject:

Renewal of 'Consent to Operate' u/s 21 of Air (Prevention & Control of Pollution) Act, 1981 for discharge of

emissions arising out of premises.

With reference to your application for obtaining Renewal of 'Consent to Operate' u/s 21 of Air (Prevention & Control of Pollution) Act, 1981, you are hereby, authorized to operate an industrial unit for discharge of the emission(s) arising out of your premises subject to the Terms and Conditions as mentioned in this Certificate.

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

Consent to Operate Certificate No.	CTOA/Renewal/BTI/2019/9511030
Date of issue:	29/07/2019
Date of explry:	31/03/2022
Certificate Type:	Renewal
Previous CTO No. & Validity:	CTOA/Varied/BTI/2018/6990175 From:04/07/2018 To:31/03/2019

2. Particulars of the Industry

Name & Designation of the Applicant	Krishan Tuteja, (Vice President- Operation)
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	1334411.8 lakhs
Category of Industry	Red
Type of Industry	Oil Refinery
Scale of the Industry	Large
Office District	Bathinda
Consent Fee Details	Rs. 8838635/- videUTR No. SBINR52019030700120533 dated 07.03.2019
Raw Materials (Name with Quantity per day)	Crude oil @ 11,25 MMTPA

Products (Name with Quantity per day)	LPG @ 2889 TPD, Naphtha @ 2615 TPD, Gasoline (R) @ Bharat IV - 3919 TPD, Gasoline (P) @ Bharat IV - 75 TPD, ATF @ 1500 TPD, Kerosene @ 600 TPD, Diesel @ Bharat IV-14527.8 TPD, Sulphur @ 622 TPD, Coke @ 2974 TPD, Hexane @ 15 TPD, Motor Turpentine Oil @ 75 TPD, Poly Propylene @ 1500 TPD, Bitumen @ 1560 TPD
By-products, if any, (Name with Quantity per day)	
Details of the machinery and process	Refinery for processing of Crude Oil
Quantity of fuel required (in TPD) and capacity of boilers/ Furnace/Thermo heater etc.	Fuel Oil for 4 no. boilers of capacity 240 TPH each Pet coke / coal for 2 no. boilers of capacity 300 TPH each HSD in 2 no. DG sets of capacity 8250 KVA & 3520 KVA Fuel oil/gas for furnaces / Units/ Bitumen blowing unit
Type of Air Pollution Control Devices to be installed	Low Nox burner with 4 no boilers of capacity 240 TPH each. Separate ESP for boiler of capacity 300 TPH each. Canopy with DG sets of capacity 8250 KVA & 3520 KVA Low Nox burners have been installed as APCDs with oll the furnaces/Units Alkali Scrubber with bitumen blowing unit
Stack height provided with each boiler/thermo heater/Furnace etc.	Stack of 100 meters height above GL with 4 no.boilers of capacity 240 TPH each. Stack of 130 meters height above GL with 2 no.boilers of capacity 300 TPH each. Stack of 37 meters height above GL with DG set of capacity 8250 KVA & 3520 KVA each. Stacks of adequate heights above GL with furnaces / Units Stack of 30 meter height above GL with Bitumen blowing unit.
Sources of emissions and type of pollutants	4 na.boilers of capacity 240 TPH each. 2 no.boilers of capacity 300 TPH each. DG set of capacity 8250 KVA & 3520 KVA each.v Furnaces / Units Bitumen Blowing Unit
Standards to be acheived under Air(Prevention & Control of Pollution) Act, 1981	As prescribed by the PPCB/CPCB/MOEF.

30/07/2019

(Vijay Gupta) 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:

The Senior Environmental Engineer, PPCB, Zonal Office, Bathiuda and this consent is issued as per directions of SEE, ZO, Bathinda to generate certificate at RO level.

Regland

30/07/2019

(Vijay Gupta) Environmental Engineer

For & on behalf

of

TERMS AND CONDITIONS

A. GENERAL CONDITIONS

- This consent is not valid for getting power load from the Punjab State Power Corporation Ltd. or for getting loan from the financial institutions.
- 2. The industry shall apply for renewal /extension of consent at least two months before expiry of the consent.
- The industry shall not violate any of the norms prescribed under the Air (Prevention & Control of Pollution)
 Act, 1981, failing which, the consent shall be cancelled / revoked.
- The achievement of adequacy and efficiency of the air pollution control devices installed shall be the entire
 responsibility of the industry
- 5. The anthorized fuel being used shall not be changed without the prior written permission of the Board,
- The industry shall not discharge any fugitive emissions. All gases shall be emitted through a stack of suitable height, as per the norms fixed by the Board from time to time.
- The industry shall provide port-holes, platforms and/or other necessary facilities as may be required for collecting samples of emissions from any chimney, flue or duct or any other outlets.

Specifications of the port-holes shall be as under:-

The sampling ports shall be provided atleast 8 times chimney diameter downstream and 2 times upstream from the flow disturbance. For a rectangular cross section the equivalent diameter (De) shall be calculated from the following equation to determine upstream, downstream distance:-

De = 2 LW / (L+W)

Where L= length in mts, W= Width in mts.

- ii) The sampling port shall be 7 to 10 cm io diameter
- The industry shall put display Board indicating environmental data in the prescribed format at the main entrance gate.
- The industry shall discharge all gases through a stack of minimum height as specified in the following standards laid down by the Board.
 - (i) Stack height for boiler plants

S.NO.	Boiler with Steam Generating Capacity	Stack heights
1.	Less than 2 ton/hr:	9 meters or 2.5 times the height of neighboring building which ever is more
2.	More than 2 ton/hr. to 5 ton/hr.	12 meters
3.	More than 5 ton/hr. to 10 ton/hr	15 meters
4.	More than 10 ton/hr. to 15 ton/hr	18 meters
5.	More than 15 ton/hr. to 20 ton/hr	21 meters
6.	More than 20 ton/hr. to 25 ton/hr.	24 meters
7.	More than 25 ton/hr. to 30 ton/hr.	27 meters
8.	More than 30 ton/hr.	30 meters or using the formula H = 14 Qg0.3or H = 74 (Qp)0.24 Where Qg = Quantity of SO2 in Kg/hr. Qp = Quantity of particulate matter in Ton/day.

Note: Minimum Stack height in all cases shall be 9.0 mtr. or as calculated from relevant formula whichever is more.

- (ii) For industrial furnaces and kilns, the criteria for selection of stack height would be based on fuel used for the corresponding steam generation.
- (iii) Stack height for diesel generating sets:

Capacity of diesel generating set	Height of the Stack	
0-50 KVA	Height of the building	+ 1.5 mt
50-100 KVA	-do-	+ 2.0 mt.
100-150 KVA	-do-	+ 2,5 mt.
150-200 KVA	-do-	+ 3.0 mt,
200-250 KVA	-do-	+ 3.5 mt.
250-300 KVA	-do-	+ 3.5 mt,

For higher KVA rating stack height H (in meter) shall be worked out according to the formula:

H = h + 0.2 (KVA)0.5

where h = height of the building in meters where the generator set is installed.

- The pollution control devices shall be interlocked with the manufacturing process of the industry to ensure its regular operation.
- 11. The existing pollution control equipment shall be altered or replaced in accordance with the directions of the Board, and no pollution control equipment or chimney shall be altered or as the case may be erected or reerected except with the prior approval of the Board.
- The industry will provide canopy and adequate stack with the D.G sets so as to comply with the provision of notification No GSR-371 E dated 17-5-2002(amended from time to time) issued by MOEF under Environment (Protection) Act, 1986.
- 13. The Goyt, of Punjab, Department of Science, Technology & Environment vide its notification no.4/46/92-3ST/2839 dt. 29/12/1993 has put prohibitiou on the use of rice husk as fuel after 1.4.1995 except the following:-

างไก the form of briquettes and use of rice husk in fluidized bed combastion. So the industry shall make the necessary arrangement to comply with the above notification. เงิน

- 14. The industry shall submit balance sheet of every financial year to the concerned Regional Office by 30th June of every year
- 15. That the industry shall submit a yearly certificate to the effect that no addition / up-gradation/ modification/ modernization has been carried out during the previous year otherwise the industry shall apply for the varied consent.
- 16. a) The industry shall ensure that at any time the emission do not exceed the prescribed emissions standards laid down by the Board from time to time for such type of industry /emissions.
 - b) The industry shall ensure that the emissions from each stack shall conform to the following emission standards laid down by the Board in respect of the Industrial Boilers.

Steam Generating Red capacity A.	juired particulate matter B.	
Area upto 5 Km from Otl Other than the periphery of I and Class-II town	ner than 'A' class	
Less than 2 ton/hr.	800 mg/NM3	1200 mg/NM3
2 ton to 10 ton/hr.	500 mg/NM3	1000 mg/NM3
Above 10 ton to 15 ton/hr	350 mg/NM3	500 mg/NM3
Above 15 ton/hr	150 mg/NM3	150 mg/NM3

All emissions normalized to 12% earbon dioxide.

- 17. The industry shall ensure that the Hazardous Wastes generated from the premises are handled as per the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, without any adverse effect on the environment, in any manner.
- 18. The air pollution control equipments shall be kept at all time in good running condition and;

- (i) All failures of control equipments.
- (ii) The emissions of any air pollutant into the atmosphere in excess of the standards lay down by the Board occurring or being apprehended to occur due to accident or other unforeseen act or event. 'Shall be intimated through fax to the concerned Regional Office as well as to the Director of Factories, Punjab, Chandigarh as required under rule 10 of the Punjab State Board for the Prevention and Control of Air Pollution Rules, 1983'.
- 19. The industry shall plant minimum of three suitable varieties of trees at the density of not less than 1000 trees per hectare all along the boundary of the industrial premises.
- The industry shall submit a site emergency plan approved by the Chief Inspector of Factories, Punjab as applicable.
- The industry shall comply with the conditions imposed by the SEIAA/MOEF in the Environmental Clearance granted to it as required under EIA notification dated 14/9/06, if applicable.
- 22. The industry shall make necessary arrangements for the monitoring of stack emissions and shall get its emissions analyzed from lab approved / authorized by the Board:-
 - Once in Year for Small Scale Industries.
 - (ii) Twice/thrice/four time in a Year for Large/Medium Scale Industries.
- 23. The industry shall maintain the following record to the satisfaction of the Board :-
 - Log books for running of air pollution control devices or pnmps/motors used for it.
 - (ii) Register showing the result of various tests conducted by the industry for monitoring of stack emissions and ambient air.
 - (iii) Register showing the stock of absorbents and other chemicals to be used for scrubbers.
- 24. The industry will install the separate energy meter for running pollution control devices and shall maintain record with respect to operation of air pollution control device so as to the satisfy the Board regarding the regular operation of air pollution control device and monthly reading / record may be sent to the Board by the fifth of the following month.
- 25. The industry shall provide online moultoring system as applicable, for in stack emission and shall maintain the record of the same for inspection of the Board Officers.
- 26. The Board reserves the right to revoke the consent granted to the industry at any time, in case the industry is found violating the provisions of Air (Prevention & Control of Pollution) Act, 1981 as amended from time to time.
- 27. The industry shall comply with any other conditions laid down or directions issued in due course by the Board under the provisions of the Air (Prevention & Control of Pollution) Act, 1981.
- 28. Nothing in this consent shall be deemed to neither preclude the institution of any legal action nor relieve the applicant from any responsibilities, liabilities or penalties to which the applicant is or may be subjected to under this or any other Act.
- Any amendments/revisions made by the Board/CPCB/MOBF in the emission/stack height standards shall be applicable to the industry from the date of such amendments/revisions.
- 30. The industry shall dispose off its solid waste generated by the burning of fuel in an Environmentally Sound Manner within the premises/outside as approved by the Board, to avoid public misauce and air pollution problem in the area.
- The industry shall ensure that no air pollution problem or public nuisance is created in the area due to the discharge of emissions from the industry.
- 32. The industry shall provide adequate arrangement for fighting the accidental leakage/discharge of any air pollutant/gas/ liquids from the vessels, mechanical equipment's etc, which are likely to cause environmental pollution.
- The industry shall not change or alter the manufacturing process(es) and fuel so as to change the
 quality/quantity of emissions generated without the prior permission of the Board.
- 34. The industry shall earmark a land within their premises for disposal of boiler ash in an environmentally sound manner, and / or the industry shall make necessary arrangements for proper disposal of fuel ash in a scientific manner and shall maintain proper record for the same, if applicable.
- The industry shall obtain and submit Insurance cover under the Public Liability Insurance Act, 1991.
- The industry shall provide proper and adequate air pollntion control arrangements for control emission from its fuel handling area, if applicable.

- The industry shall comply with the code of practice as notified by the Government/Board for the type of
 industries where the siting guidelines / Code of Practice have been notified.
- 38. The industry shall not cause any nuisance/traffic hazard in vicinity of the area
- 39. The industry shall ensure that the noise & air emission from D.G. sets do not exceed the standards prescribed for D.G. sets by the Ministry of Environment & Forests, New Delhi.
- 40. The industry shall ensure that there will not be significant visible dust emissions beyond the property line
- The industry shall provide adequate and appropriate air pollution control devices to contain emissions from handling, transportation and processing of raw material & product of the industry.
- 42. The Industry shall ensure that its production capacity does not exceed the capacity mentioned in the consent and shall not carry out any expansion without the prior permission / NOC of the Board.

B. SPECIAL CONDITIONS

- 1. The industry will get a study conducted in the circumference around the refinery upward & download in pre-monsoou and post monsoon by engaging Sh. Dinesh of Punjab Agriculture University, Ludhiana in the next season.
- The industry shall ensure that no treated / untreated domestic / trade effluent is discharged into soakage pits / bore wells to avoid contamination of ground water.
- 3. The industry will not use the newly acquired land measuring 175.41 acres for industrial activities without obtaining site clearance / Environmental Clearance as well as prior permission of the Board.
- 4. The industry shall comply with the conditions imposed in all the Environmental Clearances granted to the industry from time to time.
- 5. The industry will develop 33% of total project area under plantation as per the conditions of Environmental Clearance within three years in phasewise manner and shall submit the quarterly report to the Regional Office,
- 6. The industry will take all necessary measures to manage and to dispose off the solid waste generated in its premises scientifically at its own level, within three months.
- The industry will ensure the implementation of dynamic emission limit within time for dual fuel stacks, within a period of one month.
- 8. The industry shall provide stack monitoring facility as per Emission Regulation Part-3(ERP-3) norms for all stacks attached with boilers.
- 9. The industry will ensure that the port hole and ladder facility is safe to carry out monitoring. In place of monkey ladder, spiral type/scaffold ladder shall be provided to ensure safety of monitoring personnel.

 10. The industrial shall abide by the specific conditions and general conditions imposed in Environmental Clearance issued by Govt, of India, Ministry of Environment, Forest and Climate Change, New Delhi.
- 11. 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.
- 12. The industry will properly maintain / operate online continuous monitoring system and will ensure connection with the website of PPCB / CPCB for data transmission.
- 13. The industry shall display the stack monitoring data online.
- 14. The industry shall operate & maintain the ambient air stations installed by the industry & shall submit the record to the Board

30/07/2019

(Vijay Gupta) Environmental Engineer

For & on behalf

of



PUNJAB POLLUTION CONTROL BOARD

Regional Office, Bathinda (DISTRICT ADMINISTRATIVE COMPLEX, ROOM NO. 401 E - 403 E, 406 E & 418 E, 3RD FLOOR)

Website:- www.ppcb.gov.in

Office Dispatch No:

Registered/Speed Post

Date:

Industry Registration ID:

R12BTI44706

Application No:

9511579

To,

Prabh Das

Hpcl-mittal Energy Limited, guru Gobind Singh Refinery Project, village Phullokari, taluka Talwandi Saboo,

District Bathinda.

Bathinda, Bathinda-151301

Subject:

Renewal of 'Consent to Operate'an outlet u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974 for

discharge of effluent.

With reference to your application for obtaining Renewal of it 1/2 Consent to Operate it 1/2 an outlet for discharge of the effluent u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974, you are, hereby, authorized to operate an industrial unit fordischarge of the effluent(s) arising out of your premises subject to the Terms and Conditions as mentioned in this Certificate.

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

Consent to Operate Certificate No.	CTOW/Renewal/BT1/2019/9511579
Date of issue:	29/07/2019
Date of expiry:	31/03/2022
Certificate Type:	Renewal
Previous CTO No. & Validity:	CTOW/Varied/BTI/2018/6992482 From:04/07/2018 To:31/03/2019

2. Particulars of the Industry

Name & Designation of the Applicant	Krishan Tuteja, (Vice President- Operation)
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	1334411.8 lakhs
Category of Industry	Red
Type of Industry	Oil Refinery
Scale of the Industry	Large
Office District	Bathinda
Consent Fee Details	Rs. 8838635/- vide UTR No. SBINR52018011000065383 dated 07.03.2019
Raw Materials(Name with quantity per day)	Crude oil @ 11.25 MMTPA

LPG @ 2889 TPD, Naphtha @ 2615 TPD, Gasoline (R) @ Bharat IV - 3919 TPD, Gasoline (P) @ Bharat IV - 75 TPD, ATF @ 1500 TPD, Kerosene @ 600 TPD, Diesel @ Bharat IV-14527.8 TPD, Sulphur @ 622 TPD, Coke @ 2974 TPD, Hexane @ 15 TPD, Motor Turpentine Oil @ 75 TPD, Poly Propylene @ 1500 TPD, Bitumen @ 1560 TPD
Refinery for processing of Crude Oil
The industry has installed an ETP of capacity 500 KLD for treatment of process effluent streams of aily water stream, Stripped sour water and Desalter effluent are treated in the following ways: i) Primary treatmentsection (far oil & TSS remaval) consists of the following processes: • American Petroleum institute (API) separators, • Tilted Plate interceptor (TPI) separator, • Diffused/Dissolved Air Floatatian (DAF) system (having flash mixing tank, flocculation tank, DAF tank and associated facilities), ii) Secondary treatmentsection (for BOD & COD reduction, Two stage biological section consisting of the following processes: • Sequential Batch Reactor (SBR) • Membrane Bio Reactor (MBR)
Trade effluent @ 475 Kl/hour - Partly onto land for plantation and partly recycled back into the process after treatment in ETP. Domestic effluent @ 600 Kl/day - After treatment in STP the treated water is either sent to the ecological ponds from where the water is used for irrigation or sent to SBR section

30/07/2019

(Vijay Gupta) Environmental Engineer

For & on behalf

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(Punjab Pollution Control Board)

Endst. No.:

Dated:

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

The Senior Environmental Engineer, PPCB, Zonal Office, Bathinda and this consent is issued as per directions of SEE, ZO, Bathinda to generate certificate at RO level

Right !

30/07/2019

(Vijay Gupta) Environmental Engineer

For & on behalf

of

TERMS AND CONDITIONS

A. GENERAL CONDITIONS

- This consent is not valid for getting power load from the Punjab State Power Corporation Limited or for getting foan from the financial institutions.
- The industry shall apply for renewal/further extension in validity of consent atleast two months before expiry of the consent.
- The industry shall ensure that the effluent discharging through the authorized outlet shall confirm to the prescribed standards as applicable from time to time.
- The industry shall plant minimum of three suitable varieties of trees at the density of not less than 1000 trees
 per hectare all along the boundary of the industrial premises.
- The achievement of the adequacy and efficiency of the effluent treatment plant/pollution control devices/recirculation system installed shall be the entire responsibility of the industry.
- 6. The industry shall ensure that the Hazardous Wastes generated from the premises are handled as per the provisions of the Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008 as amended time to time, without any adverse effect on the environment, in any manner
- 7. The responsibility to monitor the effluent discharged from the authorized outlet and to maintain a record of the same rests with the industry. The Board shall only test check the accuracy of these reports for which the industry shall deposit the samples collection and testing fee with the Board as and when required.
- The industry shall submit balance sheet of every financial year to the concerned Regional Office by 30th June of every year.
- The industry shall submit a yearly certificate to the effect that no addition/np-gradation/ modification/ modernization has been carried out during the previous year otherwise the industry shall apply for the varied consent.
- 10. During the period beginning from the date of issuance and the date of expiration of this consent, the applicant shall not discharge floating solids or visible foam.
- 11. Any amendments/revisions made by the Board in the tolerance limits for discharges shall be applicable to the industry from the date of such amendments/revisions.
- The industry shall not change or alter the manufacturing process(es) so as to change the quality and/or quantity of the effluents generated without the written permission of the Board.
- 13. Any upset conditions in the plant/plants of the factory, which is likely to result in increased effluent and/or result in violation of the standards lay down by the Board shall be reported to the Environmental Engineer, Punjab Pollution Control Board of concerned Regional Office immediately failing which any stoppage and upset conditions that come to the notice of the Board/its officers, will be deemed to be intentional violation of the conditions of consent.
- 14. The industry shall provide terminal manhole(s) at the end of each collection system and a manhole upstream of final outlet (s) out of the premises of the industry for measurement of flow and for taking samples.
- 15. The industry shall for the purpose of measuring and recording the quantity of water consumed and effluent discharged, affix meters of such standards and at such places as approved by the Environmental Engineer, Punjab Pollntion Control Board of the concerned Regional Office.
- 16. The industry shall maintain record regarding the operation of effluent treatment plant i.e. record of quantity of chemicals and energy utilized for treatment and sludge generated from treatment so as to satisfy the Board regarding regular and proper operation of pollution control equipment.
- 17. The industry shall provide online monitoring equipment it's for the parameters as decided by concerned Regional Office with the effluent treatment plant/air pollution control devices installed, if applicable.
- 18. The pollution control devices shall be interlocked with the manufacturing process of the industry.
- The authorized outlet and mode of disposal shall not be changed without the prior written permission of the Board.
- The industry shall comply with the conditions imposed by the SEIAA / MOEF in the environmental clearance granted to it as required under EIA notification dated14/9/06, if applicable.
- The industry shall obtain and submit Insurance cover as required under the Public Liability Insurance Act, 1991.
- 22. The industry shall not use any unauthorized out-let(s) for discharging effluents from its premises. All unauthorized outlets, if any, shall be connected to the authorized ontiet within one month from the date of issue of this consent.

- The industry shall make necessary arrangements for the monitoring of effluent being discharged by the industry and shall monitor its effluents:-
 - (i) Once in Year for Small Scale Industries.
 - (ii) Four in a Year for Large/Medium Scale Industries.
 - (iii) The industry will submit monthly reading/ data of the separate energy meter installed for running of effluent treatment plant/re-circulation system to the concerned Regional Office of the Board by the 5th of the following month.
- 24. The industry shall provide electromagnetic flow meters at the source of water supply, at inlet/outlet of effluent treatment plant within one month and shall maintain the record of the daily reading and submit the same to the concerned Regional Office by the 5th of the following month.
- 25. The Board reserves the right to revoke this consent at any time in case the industry is found violating any of the conditions of this consent and/or the provisions of Water (Preventiou & Control of Pollution) Act, 1974 as amended from time to time.
- 26. The issuance of this consent does not convey any property right in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or Local Laws or Regulations.
- The consent does not authorize or approve the construction of any physical structures or facilities for undertaking of any work in any natural watercourse.
- 28. Nothing in this consent shall be deemed to neither preclude the institution of any legal action nor relieve the applicant from any responsibilities, liabilities or penalties to which the applicant is or may be subjected under this or any other Act.
- The industry shall make necessary and adequate arrangements to hold back the effluent in case of failure of septic tank.
- The diversion or bye pass of any discharge from facilities ntilized by the applicant to maintain compliance with the terms and conditions of this consent is prohibited except.
 - (i) Where unavoidable to prevent loss of life or some property damage or
 - (ii) Where excessive storm drainage nr run off would damage facilities necessary for compliance with terms and conditions of this consent. The applicant shall immediately notify the consent issuing authority in writing of each such diversion or bye-pass.
- 31. The industry shall ensure that no water pollution problem is created in the area due to discharge of effluents from its industrial premises.
- 32. The industry shall comply with the code of practice as notified by the Government/ Board for the type of industries where the siting guidelines/ code of practice have been notified.
- 33. Solids, sludge, filter backwash or other pollutant removed from or resulting from treatment or control of waste waters shall be disposed off in such a manner to prevent any pollutants from such materials from entering into natural water.
- 34. The industry shall re-circulate the entire cooling water and shall also re-circulate/reuse to the maximum extent the treated effluent in processes
- The industry shall make necessary and adequate arrangements to hold back the effluent in case of failure of re-circulation system/ effluent treatment plant.
- 36. The industry shall make proper disposal of the effluent so as to ensure that no stagnation occurs inside and outside the industrial premises during rainy season and no demand period.
- 37. Where excessive storm water drainage or run off, would damage facilities necessary for compliance with terms and conditions of this consent, the applicant shall immediately notify the consent issuing authority in writing of each such diversion or bye-pass.
- 38. The industry shall submit a detailed plan showing therein the distribution system for conveying waste-water for application on land for irrigation along with the crop pattern for the year.
- 39. The industry shall ensure that the effluent discharged by it is toxicity free,
- 40. The industry shall not irrigate the vegetable crops with the treated effluents which are used/ consumed as
- Drains causing oil & grease contamination shall will be segregated. Oil & grease trap shall be provided to recover oil & grease from the effluent.

- 42. The industry shall establish sufficient number of piezometer wells in consultation with the concerned Regional Office, of the Board to monitor the impact on the Ground Water Quantity due to the industrial operations, and the monitoring shall be submitted to the Environmental Engineer of the concerned Regional Office by the 5th of every month.
- 43. The industry shall ensure that its production capacity & quantity of trade effluent do not exceed the quantity mentioned in the consent and shall not carry out any expansion without the prior permission/NOC of the

В, SPECIAL CONDITIONS

- 1. The industry will get a study conducted in the circumference around the refinery upward & download in pre-monsoon and post monsoon by engaging Sh. Dinesh of Punjab Agriculture University, Ludhiana in the
- 2. The industry shall ensure that no treated / untreated domestic / trade effluent is discharged into soakage pits / bore wells to avoid contamination of ground water.
- 3. The industry will not use the newly acquired land measuring 175.41 acres for industrial activities without
- obtaining site clearance / Environmental Clearance as well as prior permission of the Board.

 4. The industry shall comply with the conditions imposed in all the Environmental Clearances granted to the industry from time to time.
- 5. The industry will develop 33% of total project area under plantation as per the conditions of Environmental Clearance within three years in phasewise manner and shall submit the quarterly report to the Regional Office.
- 6. The industry will take all necessary measures to manage and to dispose off the solid waste generated in its
- premises scientifically at its own level, within three months.

 7. The industry will ensure the implementation of dynamic emission limit within time for dual fuel stacks, within a period of one month.
- 8. The industry will maintain proper record regarding consumption of raw water and submit the same on monthly basis in Regional Office.
- 9. The industrial shall abide by the specific conditions and general conditions imposed in Environmental Clearance issued by Goyt, of India, Ministry of Environment, Forest and Climate Change, New Delhi. 10. 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.
- 11. The industry will properly maintain / operate online continuous monitoring system and will ensure connection with the website of PPCB / CPCB for data transmission.
- 12. The industry will ensure regular maintenance & operation of the continuous online monitoring system with temper proof mechanisms having facilities for online calibration.
- 13. All the pipes provided for the recharging system should be visible and properly coloured with light blue
- 14. The industry will discharge its entire treated trade effluent for plantation / green belt with proper irrigation / plantation network and shall not store its treated trade effluent into the storm water storage tank under any circumstances.
- 15. The industry will ensure proper arrangements / lay pipeline network for discharge of its treated trade effluent in green belt / plantation area scientifically.
- 16. 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.
- 17. The industry shall install separate energy meter for running of effluent treatment plant / re-circulation system and monthly report be sent to the Board by the fifth of the following month.
- 18. The industry shall obtain permission from the Central Ground Water Authority for the abstraction of ground water.

30/07/2019

(Vijay Gupta) **Environmental Engineer**

For & on behalf

Annexure-VIII Date: 6th Dec'19

Ref: HMEL-TS-40-ENV 653

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 Compliance Report (From Apr'19 to Sep'19) for Guru Gobind Singh Refinery at Phullokhari, Bathinda District, Punjab.

EC No: F. No. J-11011/386/2016-IA-II (I) dated 7th August 2018. Ref:

Dear Sir,

This is with reference to the Environmental Clearance letter No. J-11011/386/2016-IA-II (I) dated August 7, 2018 on the above subject.

Please find enclosed six monthly compliance report (from Apr'19 to Sep'19) of Guru Gobind Singh Refinery (along with Annexures) on the environmental conditions stipulated by MoEF&CC.

Thanking you,

Very Truly Yours,

Satish Kumar Kalra (DGM-Technical Services)

HPCL-Mittal Energy Limited

Cc: Central Pollution Control Board, New Delhi and Punjab Pollution Control Board, Bathinda Punjab. Cc: Punjab Pollution Control Board, 3rd Floor, Room No: 406E, Regional Office, Bathinda.

Annexure-1: Soft copy of original test reports of manual monitoring in CD.

Annexure-II: Ambient Air Quality Data (from Apr'19 to Sep'19).

Annexure-III: CSR activities carried out for improving socio-economic conditions (from Apr'19 to Sep'19). Annexure-IV: CSR activities carried out for community welfare including eco-developmental measures in

the surrounding areas (from Apr'19 to Sep'19).

Annexure- V: Copy of the advertisement publishing the accordance of Environmental Clearance by MoEF&CC.

Annexure- VI: Copy of mail to MoEF&CC for action plan of Corporate Environment Responsibility (CER).

Annexure-VII: Copy of Air & Water Consent.

Annexure-III: Acknowledgement copy submitted, to MoEFACC, Chaudigarh.

Corporate Office: INOX Towers, Plot No. 17, Sector 16-A, NOIDA-201301 (U.P.) INDIA; Tel: +91 120 4634500; Fax: +91 120 4271940; Website: www.hmel.in Regd. Office: Village Phulokhari, Taluka Talwandi Saboo, Bathinda, Punjab-151301: CIN: U23201PB2000PLC024126