G.V.K. Power (Goindwal Sahib) No. 900 Date. 20/5/21 DESPATCH

Ref: GVKPGSL/ MoEF & CC/2021/
Date: 20-05-2021

To
The Director (Thermal)
Ministry of Environment, Forest & Climate Change (IA)
Government of India,
Indira Paryavaran Bhavan, Ali Ganj, Jorbagh Road
New Delhi-110 003

Sir,

Sub: 2X270 MW Coal base Thermal Power Project M/s. GVK Power (Goindwal Sahib) Ltd., near Goindwal Sahib Tehsil & Distt.- Tarn Taran , Punjab- *Submission of Half Yearly report (Oct,2020-March,2021) on compliance of the stipulated conditions of Environmental Clearance awarded by MoEF&CC-reg.*

Ref: Environment Clearance Letter no. J-13011/78/2008-IA (T) dtd 9th May 2008, amendment and extension of validity of EC letter J-13011/78/2007-IA.II (T) dtd 19th February 2014 and further amendment of EC for change in source of Coal dtd 9th March, 2016, GOI, MoEF&CC.

We hereby submitting the soft copy (CD) of Half Yearly report (Oct,2020-March,2021) on Compliance of the stipulated conditions of Environmental Clearance awarded by MoEF&CC for 2X270 MW Coal based Thermal Power Project near Goindwal Sahib Tehsil & Distt.- Tarn Taran, Punjab as per S.O 5845 (E) under the Notification of MoEF&CC dated 28th November, 2018.
This is for your kind information and records please.

Thanking you,

Yours sincerely,
for M/s. GVK Power (Goindwal Sahib) Ltd,

GVK Power (Goindwal Sahib) Ltd.

Vikas Chandra Shukla
Plant Head- (O&M)

Encl: 1. Half Yearly EC Compliance Report in soft copy (CD) (Oct, 2020-March, 2021)

Contd---

GVK Power (Goindwal Sahib) Limited
Goindwal Sahib Kapurthala Road,
Goindwal Sahib,
Dist : Tarn Taran – 143 422. Punjab – India

T +91 01859 225113 F +91 01859 223332
www.gvk.com
CIN : U40109TG1997PLC028483

Registered Office
Paigah House, 156-159, Sardar Patel Road
Secunderabad – 500 003,
Telangana, India

ENERGY
RESOURCES
AIRPORTS
TRANSPORTATION
HOSPITALITY
LIFE SCIENCES

CC:

1. Northern Regional Officer,
   Ministry of Environment and Forests
   Addl. Principal Chief Conservator of Forests (Central)
   Bay No.24-25, Sector 31-A, Dakshin Marg,
   Chandigarh-160 030

2. Member Secretary,
   Central Pollution Control Board,
   Parivesh Bhawan, East Arjun Nagar,
   Delhi - 110 032

3. Member Secretary,
   Punjab Pollution Control Board
   Vatavaran Bhawan, Nabha Road, Patiala- 147 001

4. Environmental Engineer,
   Regional Officer, Punjab Pollution Control Board,
   Plot No. 164, Focal Point Mehta Road,
   Amritsar.

EC Compliance Status Report

For

2X270 MW GVK Thermal Power Plant ,Goindwal Sahib, Punjab

Report No-21
March,2021

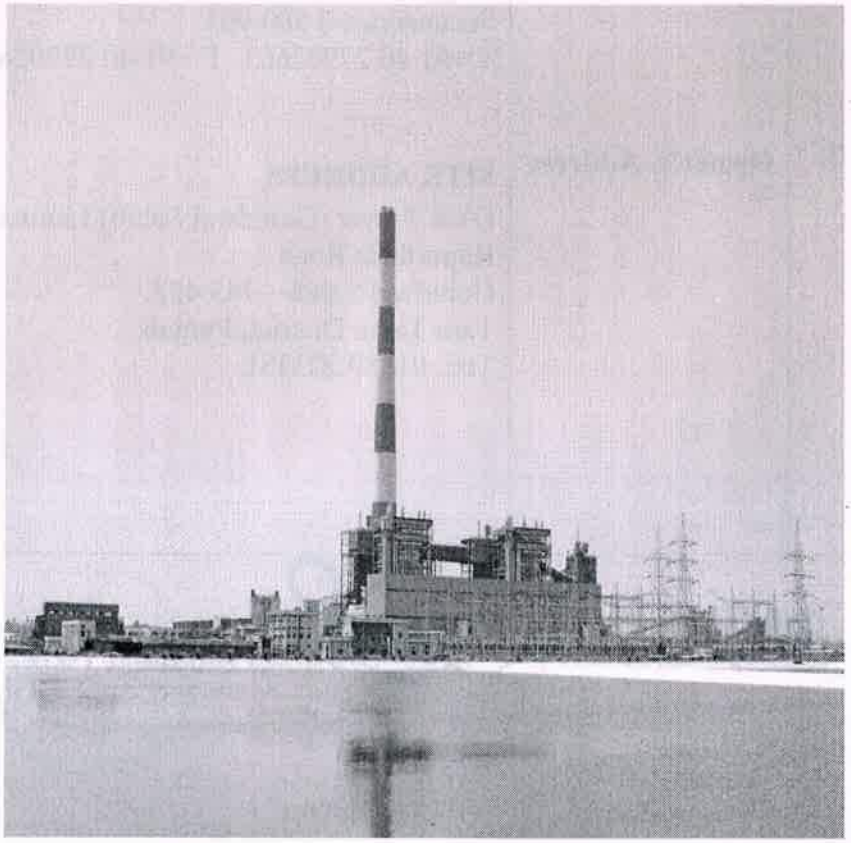
EC Compliance Status Report

For

2x270 MW
GW Thermal Power
Plant, Godawari Sahib,
Raipur

2X270 MW GOINDWAL SAHIB THERMAL POWER PLANT
AT
GOINDWAL SAHIB,TARN TARAN DISTRICT PUNJAB

HALF-YEARLY PROGRESS REPORT



Oct, 2020 to March, 2021

REPORT NO. 21
MARCH, 2021

GVK Power (Goindwal Sahib) Ltd.

Project Information:

1.	**Project Name**	2X270 MW Goindwal Sahib Coal Based Power Plant
2.	**Location**	Goindwal Sahib, District – Tarn Taran- Punjab
3.	**Owner's Address**	GVK Power (Goindwal Sahib) Ltd. Paigah House, 156-159, Sardar Patel Road, Secunderabad 500 003. T +91 40 27902663 F +91 40 27902665 **SITE ADDRESS** GVK Power (Goindwal Sahib) Limited, Kapurthala Road Goindwal Sahib – 143 422. Tarn Taran District, Punjab Tel: 01859 223331.

Compliance Status report of the stipulated conditions in the Environment Clearance granted by MoEF vide letter No. J-13011/78/2008-IA (T) Dated 9th May 2008, amendment and extension of validity of EC letter J-13011/78/2007-IA.II (T) dtd 19th February 2014 and further amendment of EC vide letter No. J-13011/78/2007-IA.II (T) dtd 9th March, 2016 for change in source of Coal, GOI, MoEF&CC for setting up of 2X270 MW Coal Based Thermal Power Project near Goindwal Sahib village, Tarn Taran dist. Punjab.

Terms & Conditions:

Sl. No.	Terms & Conditions	Compliance Status
i.	The total land requirement for the project shall be restricted to 600 acres.	Complied.
ii.	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5 % and 34% respectively	Shall be complied. Sulphur and Ash content will not exceed the permissible limits.
iii.	A bi-flue stack of 275 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and particulate. Exit velocity of flue gases shall not be less than 20 m/sec.	Complied, a bi-flue stack of 275 m height is constructed. The Continuous Online Emission Monitoring System (OCEMS) is installed and operational for monitoring of flue gas Temp., Pressure, Flow, SO_X, NO_X & Particulate Matter and well connected with CPCB/PPCB servers. The chimney flues are designed to ensure recommended exit velocities
iv.	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3	Complied, Designed ESPs are installed to meet particulate emission not exceeding 50 mg/ Nm3.
v.	Provision for installation of FGD shall be provided for future use.	Noted. It shall be complied as per norms prescribed by MoEF & CC. In continuation of FGD implementation, CEA has approved technology and indicative cost for FGD installation at GVK. It is under implementation. Adequate space provision has been provided for FGD.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
vi.	Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Complied, Water sprinklers/dust extraction and suppression systems have been provided in coal and ash handling plant at appropriate locations.
vii.	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Fly ash shall be used in a phased manner as per provisions of the notification on Fly Ash Utilization issued by the Ministry in Sept. 1999 and its amendment. By the end of 9th year full fly ash utilization should be ensured. Unutilized fly ash shall be disposed off in the ash pond in the form of High Concentration slurry and the bottom ash in conventional slurry mode.	For utilization of fly ash, an Agreement was entered into with M/s. Ambuja cements for lifting of 100% of fly ash from GVKP (Goindwalsahib) Ltd. In addition to that, we are encouraging to the manufactures of fly ash or clay-fly ash bricks, blocks and tiles on a priority basis and providing fly ash on free of charge. Unutilized fly ash (bottom ash) shall be disposed off in designed ash pond in the form of High Concentration Slurry Disposal **(HCSD)** and the bottom ash in conventional slurry mode and the same also to be allocated to meet the demand of local area / Govt. authority/Institution.
Viii	Ash pond shall be lined with suitable impervious lining. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	Complied, LDPE lining is provided to avoid the contamination of ground water. Proper operating and regular inspection procedure are formulated to ensure and prevent from getting breached.
Ix	Closed cycle cooling system with cooling towers shall be provided. COC of at least 5 shall be adopted and the effluent treated as per prescribed norms.	Complied. Closed cycle cooling system with cooling towers is installed. COC greater than 5 is adopted and effluent shall be treated and re-used to comply the prescribed norms.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
X	The treated effluents conforming to the prescribed standards shall be re circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	Complied. Any industrial effluent generated from plant activities including ash pond is being treated in water pollution control devices to conform the norms and reused. We comply with stipulations. Additionally, we have already installed Online Effluent Monitoring system (OCEMS) at ETP to monitor the treated effluent specified parameters (pH, COD, BOD & TSS) and well connected with PPCB/CPCB server. Proper arrangement has been made to avoid mixing of storm water and effluent.
Xi	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/plantation.	Complied. Sewage Treatment Plant is constructed and operational. Domestic wastewater generated from township is being treated in Sewage Treatment Plant up to the prescribed standard and after proper disinfection of treated effluent being reused for plantation & gardening purpose only. Additionally, we have already installed Online Effluent Monitoring system (OCEMS) at STP to monitor the treated effluent parameters (pH, COD, BOD & TSS) and well connected with PPCB/CPCB server.
Xii	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	A well designed Rain Water Harvesting Scheme is submitted to Central Ground Water Authority and the same is under implementation.
Xiii	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy	Complied with. Adequate Fire fighting systems are installed to handle any miss happening.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
	of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry at Chandigarh.	Full details & plant layout are submitted.
Xiv	Storage facilities for liquid fuel such as LDO and / HFO shall be made in the plant area where risk is minimum to the storage facilities. Adequate arrangement of risk management shall be made in the Disaster Management Plan for the same. Mock drill shall be conducted regularly as planned.	Complied with. Storage facilities are approved by Department of Explosives, Nagpur. Adequate arrangement of risk management has been made in the Disaster Management Plan for the same. Mock drills are being conducted regularly as per defined procedures.
Xv	Regular monitoring of ground water in and around the ash pond area shall be carried out, records maintained and periodic reports shall be furnished to the Regional Office of this Ministry.	Complied with. Four (4) nos. of Piezometer points are established in the prominent location of plant in consultation with PPCB officials for the purpose of ground water monitoring. Ground water sample is being analyzed and periodic report submitted to the Regional Office of MoEFCC as enclosed *Annexure-1 Environmental Status Report.*
Xvi	A Green belt of adequate width and density shall be developed around the plant periphery covering about 160 acres of project area preferably with local species.	Complied. 100% of green belt is developed scientifically with proper width and density with following the green belt development guidelines issued by CPCB, to mitigate pollution in and around the plant and maintain ecological balance. Moreover, we surveyed for developed green belt to quantify the number of plants, its density & species planted and survival rate. For that, we engaged Divisional Forests Office, Amritsar, Forest and Wildlife Preservation Department, Govt. of Punajb. As per surveyed report, developed green belts consisting more than 3 tiers and 50m width along periphery of the plant boundary and a thick vegetation also developed around the ash pond, maintaining trees density of 2500 nos. per hectare with covering area of 64 hectares Land. Mostly native plants varieties are

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
		planted e.g Sissio along with some other good forestry plants varieties such as Arjun, Karonj, Kadamba, Alstonia, Silver oak, Jamun, Jamuni, Tuna & Dek etc. having survival rate more than 80%. The planted trees are more than One Lakhs Sixty One Thousand (1,61,000) inside the plant premises, as per report submitted by DFO office, Amritsar.
Xvii	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied with. First aid centre, Primary health centre and ambulance are provided.
xviii	Leq of Noise levels emanating from gas and steam turbines shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs / ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy / less noisy areas.	Complied with. Systems are engineered to limit the noise level to 75 dBA. PPEs are being provided for workers working in high noise area. Periodical and regular medical checkups are being carried out for all the employees working in plant area. Corrective measures, if any, as suggested will be adopted, if needed. However, periodically ambient noise monitoring is being carried out as per norms, attached Annexure-1 Environmental Status Report.
Xix	Regular monitoring of ground level concentration of SO_2, NOx, SPM and RSP shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry.	Complied with. 8 nos. of Monitoring stations were established in consultation with PPCB and continuous monitoring been carrying out as per AAQM Notification-2009 issued by CPCB. In addition to that, Mercury (Hg) parameter is also being monitored in ambient air in the core as well as buffer zone and records maintained for the same at site. Periodic reports are being submitted to the concerned authorities as attached *Annexure-1 Environmental Status Report.*
Xx	The project proponent shall advertise in at least two local newspapers widely circulated in the	Complied.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
	region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the SPCB/ Committee and may also be seen at website of the Ministry of Environment and Forests at http://envfor.nic.in.	
xxi.	A separate environment management cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	Complied with. An Environment Management Cell headed by Vice President and Manager (Environment) is in place. Our environment management cell is always pioneer to extent Awareness programs about Environmental issues /challenges among employees/families as well as in nearby villages.
xxii.	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguard shall be submitted to this Ministry/Regional Office/ CPCB/SPCB.	Complied with. The status on the implementation of stipulated conditions is being submitted every 6 months to the Ministry and its Regional Office and CPCB/PPCB.
xxiii.	Regional Office of the Ministry of Environment & Forests located at Chandigarh will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.	Complied with.
xxiv.	Separate funds shall be allocated for implantation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be	Complied with. Funds are allocated towards environmental protection measures and the cost is included in the project cost. Year wise expenditure attached.

Sl. No.	Terms & Conditions	Compliance Status
	diverted for other purposes and year-wise expenditure should be reported to the Ministry.	
Xxv	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	Complied. Financial Closure was achieved on 21-05-2010.
Xxvi	Full cooperation shall be extended to the Scientists / Officers from the Ministry / Regional Office of the Ministry at Chandigarh/ the CPCB / the SPCB who would be monitoring the compliance of environmental status.	Full cooperation being extended to Scientists/Officers from the Regulatory bodies.
As per MoEF's amendment and extension of validity of EC vide letter No. J-13011/78/2007-IA-II(T) dated 19-02-2014 after the condition no. (xxvi), the following conditions are inserted		
xxvii	Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.	Complied. We have established Solar Power Plant on the roof top of Filter Water Tank in premises of GVK Thermal Power Plant. In addition to above, We have also installed Solar Power System on roof top of Khadoor Sahib Railway Station to catering the power for emergency lighting for entire station. As we have developed Khadoor Sahib Railway Station 05 km far away from our plant and spent Rs. 55 crores for this development along with residential Quarters for the Staff.
xxviii	A long term study on radio activity and heavy metals contents on coal to be used shall be carried	Complied. The testing of radio activity and heavy

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
	out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	metals contents in coal and fly ash is being carried out by certified labs (BARC/MoEFCC/ CPCB) from last three years and its records are maintained.
Xxix	Mercury emissions from stack shall also be monitored on periodic basis.	Complied. Mercury emission is being monitored on regular basis.
Xxx	Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land.	Complied. Appropriate arrangements have been made to control fugitive emissions.
Xxxi	No ground water shall be extracted for use in operation of the power plant even in lean season.	Noted and complied. Plant consumptive water is sourced from River Beas for plant operational purpose.
xxxii	Source sustainability study of water requirement shall be carried out by an institute of repute. The study shall also specify the source of water for meeting the requirement during lean season. The report shall be submitted to the Regional Office of the Ministry within six months.	Noted. **20 cusecs** of water is allocated from the perennial river Beas. The lean flow in river Beas is 3000 cusecs.
xxxiii	Hydro geological study of the area shall be reviewed annually and report submitted to the Ministry. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.	Not applicable on us. As no ground water extraction is being done. We are only using river water for generation of power. As we have been allocated 20 cusecs of water from River Beas. However, we had done Hydrogeological study for our plant site by NIH, Roorkee. The report was submitted in previous Half yearly compliance report. As per report submitted by NIH officials, there was found no impact on ground water in the study area covered 10kms from plant, by thermal power. None of the existing water bodies or the drainage system is disturbed.
xxxiv	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	Noted. Not Applicable.

Sl. No.	Terms & Conditions	Compliance Status
Xxxv	COC of 5.0 shall be adopted.	Complied, as given at Sl. No. ix.
xxxvi	Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.	Agreed.
xxxvii	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 75 %.	Green Belt with more than 5 tiers of tree has been implemented. Full details are given at Sl. No. xvi.
xxxviii	Three tier green belt shall be developed all around Ash Pond over and above the Green Belt around the plant boundary.	Complied.
xxxix	A common Green Endowment Fund shall be created and the interest earned out of it shall be used for the development and management of green cover of the area.	Complied. We have created Bank Account and deposited Rs. 11 crores in that towards Green Endowment Fund at IDBI Bank Limited, Hyderabad, Telangna dtd, 28.08.2019.
Xl	The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	Noted and complied. Already in consultation with local bodies to understand the requirements. 100 houses for economically weaker section are already built at Manikhera village in consultation with State Government of Punjab.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
Xli	An amount of Rs. 12 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 2.4 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	Noted and the same shall be implemented in consultation with the concerned authorities. A model Railway Station has already been developed at a cost of about Rs. 50 Crores at Khadoor Sahib, which will be very useful for the local public of that area. In addition to that, We have constructed 100 houses for EWS at Manikhera Village, Bhatinda with cost of Rs. 5 Crores.
xlii	CSR scheme should address Public Hearing issues and shall be undertaken based on need based assessment in and around the villages within 5.0 km of the site and in constant consultation with the village Panchayat and the District Administration. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self employment and jobs shall be imparted to identify villagers free of cost.	Issues raised during Public Hearing this were addressed and will be addressed on continuous basis if there are any new issues. Agriculture demonstration centre is developed in plant vicinity. Nursery of the forestry plants has been developed in the demonstration plot. Around 20,000 saplings of different species of forestry plants like sheesham, Karanj, Arjun, cassia fistula, siris, alistonia, cassia simian have been grown in the nursery. Two nos. of fruit orchards Kinnow and Guava were developed in plant vicinity with the area of one hectare (10,000sqm.) and one acre (4047sqm.) respectively. A Green house shed has been prepared to create a better climate for the propagation of saplings. Vegetable cultivation of different vegetables like bitter gourd, bottle gourd, pumpkin, lady's finger, tomato, garlic, onion & cucumber etc. are also being implemented. In order to conserve the environment and enhance the income of local people in future, possibility to be explored.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
	mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time.	We had done social audit at GVK Power (Goindwal Sahib) Ltd.by *Guru Nanak Dev University, Amritsar*. The report was submitted to your esteemed office in previous half yearly compliance report.
Xliv	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of the company of appropriate seniority and qualification. It shall be ensured that the head of the Cell shall directly report to the Head of the Organization.	Complied with. Details are as per Sl. No. xxi.
Xlv	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Complied with. Details are as per Sl. No. xv, xix & xxviii and further more details pls refer *Annexure-1 Environmental Status Report.*
xlvi	Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Complied with. An monitoring of surface water quality is being conducted on regular basis and record maintained. Details are as per Xlv.
Xlvii	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with	Being complied.

GVK Power (Goindwal Sahib) Ltd.

Sl. No.	Terms & Conditions	Compliance Status
	the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	
xlviii	The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.	Noted and complied. PP formulated Integrated SHE policy for Safety, Health & Environment and the same is adopted.
As per MoEF&CC's amendment of EC for change in source of Coal vide letter No. J-13011/78/2007-IA-II (T) dated 09-03-2016 after the condition no. (xlviii), the following conditions are inserted		
xlviii	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5% and 37% respectively for domestic coal and 0.8 % and 30% respectively for imported coal at any given time subject to compliance of the Ministry's Notification dated 02-01-2014 regarding use of coal with ash content not exceeding thirty four per cent, on quarterly average basis. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.	Complied. Coal supply agreement signed with CCL and SECL subsidiaries of Coal India Limited (CIL) for 1,700,000 MTPA and 6300 MTPA of coal under SHAKTI Scheme of Government of India, in February 2018. Coal under SHAKTI Scheme from CCL mines is being used from April 2018.
	The PP shall advertise in the newspaper and place on the website, the amendment issued by the Ministry for public information.	Complied.

GVK Power (Goindwal Sahib) Ltd.

Site Progress Photographs

GVK Power (Goindwal Sahib) Ltd.

GVK Power (Goindwal Sahib) Ltd.

Green Belt Photographs

for

GVK Power (Goindwal Sahib) Ltd.

Budget for EMP FY 2021-22

Details about the funds kept in the budget for implementation of Environment Management Plans, up to date expenditure on different items of EMP and plan for FY 2021-22 as per following proforma.

S.No.	Items	Expenditure details Till date	Proposed budget estimates for FY 2020-21
		Non-Recurring (in Crores)	Recurring (in Crores)
a.	Air pollution control measures	131.25	100.25
b	Water pollution control measures	20.85	0.50
c	Noise pollution control measures	2	-
d	Monitoring	0.85	0.50
e	Green belt	5.90	1.00
f	Lab	0.55	0.15
g	Bio Medical Waste Management	0.60	0.10
h	HZW Management	0.40	0.10
i	E Waste Management	0.15	0.10
j	Solid waste management	59.00	10.50
Total		**221.55**	**113.20**

GVK Power (Goindwal Sahib) Ltd.

Environmental Status Report

For

2X270 MW GVK Thermal Power Plant, Goindwal Sahib, Punjab

March,2021

GVK Power (Goindwal Sahib) Ltd.

Environmental Status Report

For

2x270 MW
GVK Thermal Power
Plant, Godavari Sagar,
Purba

March 2021

1 THE COMPANY

GVK is a leading Indian conglomerate with experience and expertise spanning across diverse sectors including Energy, Resources, Airports, Transportation, Hospitality and Life Sciences. Having already invested over Rs.20,000 crore (US$4.3 billion), GVK has projects worth over another Rs.30,000 crore (US$6.6 billion) in pipeline, in India.

A pioneer, GVK set up India's first independent power plant, first six-lane road project and the first brownfield airport under the Public Private Partnership model.

GVK has over 2400 MW projects under generation and development.

2 THE PROJECT

GVK Power (Goindwal Sahib) Ltd. established 540 MW (2x270MW) Coal based Thermal Power Project near Goindwal Sahib Tehsil & District Tarn Taran Punjab. The project has been accorded Environment Clearance by Ministry of Environment & Forests, Govt. of India vide their Letter No. J-13011/78/2008-IA (T) Dated 9th May 2008 and Amendment and Extension of validity of EC vide letter J-13011/78/2007-IA.II (T) Dated 19th February 2014. Consent to Operate (CTO) for Air and Water for both units is granted by PPCB under Air (Prevention and Control of Pollution) Act,1981 & Water (Prevention and Control of Pollution) Act, 1974 respectively with validly 31.03.2021.

3 STATUS OF THE PROJECT

At present the project is operational with full capacity of plant load since *June, 2017* in a sustainable manner.

4 OBJECTIVE OF ENVIRONMENT MONITORING

To assess environmental impacts from operational activity, it is essential to monitor the environmental quality in the surrounding area. The environmental status within the impact zone could be used for identification of significant environmental issues to be addressed in the impact assessment study.

Environmental monitoring helps in signaling the potential problems that resulting from the project activity and will allow for prompt implementation of effective corrective measures. The main objectives of environmental monitoring are:

- To assess the changes in environmental conditions,
- To assess the effectiveness of mitigation measures,

GVK Power (Goindwal Sahib) Ltd.

- Warn significant deteriorations in environmental quality for further prevention action.

5 MONITORING PARAMETERS AND FREQUENCY

For Environment Monitoring, we have engaged a ***PPCB approved Lab M/s Envirochem Testing Lab & Research Centre, Panipat, H.R. vide Registration No. PPCB/AIR LAB/14887 and also approved by NABL (Reg. No- TC 6015).***The monitoring area covering 10 km radius from the project site as per guidelines published by the MoEF, Govt. of India. The Environment Monitoring for the project was started from September, 2017. This Environment Status Report presents the data of Oct, 2020 to March, 2021.

The following parameters have been monitored to assess the environmental quality of the region and potential impacts from the industry:

- Ambient Air Quality
- Stack emissions
- Ambient Noise Level
- Ground and Surface Water Quality
- ETP & STP Quality
- Soil Texture, Pattern and Chemical Characteristics

6 AMBIENT AIR QUALITY

6.1 Monitoring Station Selection Criteria

Eight monitoring locations have been selected on the basis of predominant Up-wind & Down-wind directions, Topography, habitation and sensitive receptors. All probable directions, which may be polluted due to the emission from the project activity, have been covered.

Also the monitoring station as monitored during EIA stage was preferred due to availability of past data and ease to assessment of the impact of construction activities on these locations.

The monitoring stations have been setup in order to locate the locations as close as feasible to the anticipated maximum pollutant concentration areas. Logistic considerations such as accessibility, security, and availability of reliable power supply etc. were also examined while finalizing the stations. The monitoring locations are depicted in **Table 1.**

Table 1: Ambient Air Quality Monitoring Stations

S. No.	Location	Code
1.	Near Railway Over Bridge (ROB)	AAQ1
2.	PLL Colony	AAQ2
3.	DM Plant	AAQ3
4.	Residential Colony	AAQ4

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S. No.	Location	Code
5.	Goindwal Sahib Village	AAQ5
6.	Hansawala Village	AAQ6
7.	Vairowal Village	AAQ7
8.	Mundi Village	AAQ8

Note- The distance and direction of the monitoring location has been considered from the mid of the project site

6.2 Parameters and Monitoring Methodology

Ambient air quality monitoring has been carried out with a frequency of two samples per week at three to four locations in a day. The baseline data of ambient air has been generated for the following parameters as mentioned below.

- PM10
- PM 2.5
- Sulphur Dioxide (SO2)
- Oxides of Nitrogen (NOX)
- Ozone (O3)
- Mercury (Hg)
- Lead
- Carbon Monoxide
- Ammonia
- Benzene
- Benzo (a) Pyrene
- Arsenic
- Nickel

Respirable Dust Samplers APM-450 BL of Envirotech Instrument Pvt. Ltd. make was installed for monitoring Particulate Matter 10 (PM10) and gaseous pollutants like SO2, NOX and Ozone. Whereas the concentration Particulate Matter 2.5 (PM2.5) was monitored by installing Envirotech made APM 550 Fine Particulate Sampler. Mercury in ambient air was monitored through electrothermal atomic absorption spectro-photometric method. The dust samples for mercury analysis are collected on EPM 2000 filter papers using Respirable Dust Samplers.

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6.3 Sampling and Analytical Techniques

The techniques used for ambient air quality monitoring are given in **Table 2**.

Table 2: Techniques used for Air Quality Monitoring

Parameter	Technique
Particulate Matter	Respirable Dust Sampler (Gravimetric method)
PM 2.5	APM 550 Fine Particulate Sampler
Sulphur Dioxide	West and Gaeke
Oxides of Nitrogen	Jacob and Hochheiser
Mercury	EPM 2000 filter paper method
Ozone	IS:5182 (P-9)
Lead	AAS & ICP Method
Carbon Monoxide	IS:5182 (P-10)
Ammonia	Indophenols blue method
Benzene	IS:5182 (P-10)
Benzo (a) Pyrene	IS:5182 (P-12)
Arsenic	AAS & ICP Method
Nickel	AAS & ICP Method

6.4 Duration and Frequency of Sampling

The monitoring has been carried out at a frequency of twice in a week at each station, adopting a continuous 24-hour schedule.

6.5 AAQ Standards

The standards of the air quality are set at a level necessary for an adequate margin of safety, to protect the public health, vegetation and property. The Ambient Air Quality standards have been notified by the Ministry of Environment and Forests (vide Gazette Notification dated 16th Nov 2009). The standards are given in Table below.

Table 3: National Ambient Air Quality Standards

Pollutant	Concentration in $\mu g/m^3$		
	Time	Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
Sulphur Dioxide ($\mu g/m^3$)	Annual Avg.* 24 hours**	50 80	20 80
Oxides of Nitrogen ($\mu g/m^3$)	Annual Avg. 24 hours	40 80	30 80
PM10 ($\mu g/m^3$)	Annual Avg. 24 hours	60 100	60 100

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Pollutant	Concentration in µg/m^3		
	Time	Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
PM2.5 (µg/m^3)	Annual Avg. 24 hours	40 60	40 60
CO (mg/m3)	8 hours Avg. 1 hours Avg.	02 04	02 04
Ozone (O3) µg/m3	8 hours* 1 hour**	100 180	100 180
Lead(Pb) µg/m^3	Annual* 24 hours**	0.50 1.0	0.50 1.0
Ammonia(NH_3) µg/m^3	Annual* 24 hours**	100 400	100 400
Benzo(a)Pyrene (BaP)- particulate phase only, ng/m^3	Annual*	1	1
Arsenic(As), ng/m^3	Annual*	6	60
Nickel(Ni), ng/m^3	Annual*	20	20

Source: Gazette of India Notification, dated 16th Nov, 2009

**** Annual Arithmetic Means of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals***

***** 24 hourly or 8 hourly or 01 hourly monitored values, as applicable shall be complied with 98% of the time in a year. 2% of the time they may exceed the limits but not on two consecutive days of monitoring***

6.6 Monitoring Results

The overall Statistical analysis (Minimum, Maximum, Arithmetic Mean, Standard deviation and 98-Percentile values through-out the study period) of the ambient air quality in region are given in ***Annexure-1 Environmental monitoring result***.

The concentration of **Mercury (Hg)** was found below detectable limit. The levels of pollutants in ambient air were found well within the National Ambient Air Quality Standards for residential or rural areas.

7 AMBIENT NOISE LEVEL

7.1 Major Sources of Noise in the Study Area

The vehicular movement on nearby highway is one of the major sources of noise, which significantly increases ambient noise levels. Also, there are plant operational activities like, turbine, boiler, heavy machinery, pump etc. and domestic & commercial noise sources such as, TV, Radio, Loudspeaker, Generator set etc.

7.2 Ambient Noise Monitoring- Methodology and Monitoring Stations

In the present study, sound pressure levels (SPL) have been measured by a sound Level Meter. Since loudness of sound is important for its effects on people, the dependence of loudness upon frequency must be taken into account in environmental noise assessment.

A total of Nine (9) locations in the plant area have been selected for measurement of ambient noise levels, covering industrial areas, commercial, residential areas as well as sensitive zones. Ambient Noise monitoring result is given in *Annexure-1 Environmental monitoring result* .These locations are presented in **Table 4.**

Table 4: Ambient Noise Monitoring Stations

S. No.	Name of Location	Station Code
1	Near Service Building	AN1
2	CHP Area	AN2
3	AHP Area	AN3
4	Near Plant Site Office	AN4
5	Near Boiler Area (Main Plant Area)	AN5
6	Residential Colony	AN6
7	Near Admin Building (Plant Main Gate)	AN7
8	Near DM Plant	AN8
9	Ash silos compressor House	AN9

At each location, noise monitoring has been carried out twice in a week manner for the entire study period.

Table 5: Ambient Noise Standards

Type of Area	Limits in dB(A) Leq*	
	Day Time	Night Time
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

-dB (A) Leq denotes the time weighted average of the level sound in decibels on scale A which is relatable to human hearing
Source: Pollution Control Acts, Rule and Notifications issued Thereunder, by Pollution Control Law Series: PCLS/02/2006(Fifth Edition) of Central Pollution Control Board, January 2006, pp 926
Day and Night time shall mean from 6:00 a.m. to 10:00 p.m. and 10:00 p.m. to 6:00 a.m. respectively.

7.3 Duration and Frequency of Sampling

The monitoring has been carried out at a frequency of quarterly basis at each station as per specified time mentioned in guidelines issued by CPCB.

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8 STACK EMISSIONS

Stacks monitoring of All APCD'S have been carried out as monitoring result given in *Annexure-1 Environmental monitoring result.*

8.1 Duration and Frequency of Sampling

Stacks monitoring of All APCD'S have been carried out on quarterly basis at each location.

8.2 Standards

The standards of the stack emissions are set at a level necessary for an adequate margin of safety, to protect the public health, vegetation and property. The emission discharge standards have been notified by the Ministry of Environment and Forests/ CPCB not more **than 50mg/Nm3.**

9 WATER QUALITY

9.1 Sampling Locations

To assess the present water quality for industrial wastewater, surface & groundwater within the plant site sampling were carried out. The monitoring result is given in *Annexure-1 Environmental Monitoring Report.* The water quality sampling locations are given in **Table 6.**

Table 6: Water Sampling Locations

Sampling Code	Water Sampling Locations
Ground Water Sampling Location	
GW1	Site Office
GW2	Fire station
GW3	PLL Colony (Near Ash Pond)
GW4	North side of Ash Pond near security post
Industrial Wastewater Sampling Locations	
STP-1 (Residential colony)	Sewage Treatment Plant
STP-2 (Plant STP)	Sewage Treatment Plant
ETP-1	Effluent Treatment Plant
Ash pond effluent	Ash pond

(All water sampling have been carried out on quarterly basis at each location.)

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9.2 Sampling and Analysis Methodology & Sampling Period

The water samples have been collected during the month of Oct, 2020 to March, 2021. All the basic precautions were taken to avoid any contamination during the sampling. Analysis of the samples was carried out as per established standard methods and procedures prescribed by CPCB and relevant IS Codes.

10 SOIL QUALITY

Assessment of soil quality is an important aspect with reference to tree plantations, percolation of water, groundwater impact, etc. The soil quality of the study area has been assessed by collecting samples and corresponding result given in *Annexure-1 Environmental Monitoring Report.*

10.1 Sampling Frequency and Analysis Methodology

The samples of Soil were collected on half yearly basis in year. The physical and chemical characteristics of the soil of the study area have been assessed by analyzing various parameters as per the methods described in "Soil Chemical Analysis" (M.L Jackson). The monitoring result is given in *Annexure-1 Environmental Monitoring Report.*

11 CONCLUSION

The GVK Thermal Power Project is bound to comply the norm prescribed by MoEFCC/CPCB/PPCB. As a part of the Environment Management Plan & Monitoring Plan, the impact due to operational activities of the project, monitoring of Air, Water, Noise & soil have been carried out continuously.

The monitoring for the above parameters has been carried out for the period Oct, 2020 to March, 2021. From the above report it is found that all the parameters are within prescribed Norms after taking mitigating measures.

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ANNEXURE-I

Environmental Monitoring Report
(Oct,2020 to March,2021)

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ANNEXURE-I

Environmental Monitoring Report
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AAQM Data

(Oct,2020 to March,2021)

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Ambient Air Quality Monitoring results (October 2020-March 2021) Location wise inside and outside the plant

Inside the GVK Plant Premises

Location 1 - Near Railway Over Bridge (ROB)

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (mg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	36.8	71.4	10.45	21.45	ND	27.1	ND	ND	12.99	ND	ND	ND	ND
2		05.10.2020	48.21	77.05	9.12	22.03	ND	18.2	ND	ND	24.01	ND	ND	ND	ND
3		08.10.2020	42.32	77.84	9.04	22.33	ND	21.01	ND	ND	21.01	ND	ND	ND	ND
4		12.10.2020	43.8	75.2	9.74	18.74	ND	24.01	ND	ND	22	ND	ND	ND	ND
5		15.10.2020	41.66	77.98	8.85	23.77	ND	21.8	ND	ND	23.19	ND	ND	ND	ND
6		19.10.2020	42.8	77.7	10.75	21.66	ND	21.45	ND	ND	22	ND	ND	ND	ND
7		22.10.2020	41.6	75.9	11.75	23.46	ND	21.74	ND	ND	18.63	ND	ND	ND	ND
8		26.10.2020	41.89	76.32	10.76	20.85	ND	21.74	ND	ND	21.75	ND	ND	ND	ND
9		29.10.2020	43.52	79.02	9.75	21.63	ND	20.79	ND	ND	20.85	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	42.4	74.5	9.33	22.85	ND	25.8	ND	ND	18.74	ND	ND	ND	ND
2		05.11.2020	42.89	77.22	11	25	ND	23	ND	ND	20.44	ND	ND	ND	ND
3		09.11.2020	46.34	76.1	11.3	24.04	ND	26.02	ND	ND	21.3	ND	ND	ND	ND
4		12.11.2020	42.01	79.03	11.23	22.45	ND	22.8	ND	ND	18.4	ND	ND	ND	ND
5		16.11.2020	45.77	75.89	13.55	24.7	ND	26.1	ND	ND	16.79	ND	ND	ND	ND
6		19.11.2020	41.87	73.55	10.88	22.4	ND	23.79	ND	ND	20.56	ND	ND	ND	ND
7		23.11.2020	46.8	74.2	11.4	21.9	ND	23.77	ND	ND	20.4	ND	ND	ND	ND
8		26.11.2020	42	77	9.74	21.63	ND	20.98	ND	ND	20.11	ND	ND	ND	ND
1	Dec., 2020	01.12.2020	37	68	10	19	ND	23.2	ND	ND	16.9	ND	ND	ND	ND

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2		04.12.2020	42.7	72.4	10.1	19.6	ND	22.8	ND	ND	24.3	ND	ND	ND	ND
3		07.12.2020	47.6	72.2	8.9	16.7	ND	26.1	ND	ND	23.4	ND	ND	ND	ND
4		10.12.2020	39.6	72.8	10.7	20.9	ND	26.3	ND	ND	23.4	ND	ND	ND	ND
5		14.12.2020	41.85	69.6	10.04	23.68	ND	24.7	ND	ND	21.94	ND	ND	ND	ND
6		17.12.2020	42.72	71.2	10.44	21.63	ND	22	ND	ND	24	ND	ND	ND	ND
7		21.12.2020	42.55	69.3	10.77	23.6	ND	27.5	ND	ND	17.3	ND	ND	ND	ND
8		24.12.2020	41.72	68.3	9.33	22.99	ND	22.7	ND	ND	23	ND	ND	ND	ND
9		28.12.2020	45.7	68.1	9.63	24.7	ND	24.2	ND	ND	20.55	ND	ND	ND	ND
1		04.01.2021	42	71	16	21	ND	22.8	ND	ND	15.2	ND	ND	ND	ND
2		07.01.2021	41.08	75	16	21	ND	23.2	ND	ND	15.8	ND	ND	ND	ND
3		11.01.2021	40.02	70.02	10.2	20.4	ND	23.2	ND	ND	19.9	ND	ND	ND	ND
4		14.01.2021	41.33	71.02	9.42	23.4	ND	23.44	ND	ND	19.01	ND	ND	ND	ND
5	Jan., 2021	18.01.2021	36.32	72.22	10.42	23.02	ND	21.4	ND	ND	23.1	ND	ND	ND	ND
6		21.01.2021	39.87	72.02	11.42	28.75	ND	22.45	ND	ND	20.47	ND	ND	ND	ND
7		25.01.2021	40.07	71.02	9.88	23.45	ND	21.04	ND	ND	20.99	ND	ND	ND	ND
8		28.01.2021	42.88	73.45	9.89	23.55	ND	24.1	ND	ND	21.74	ND	ND	ND	ND
1		01.02.2021	40.12	72.02	8	22	ND	21.9	ND	ND	16.1	ND	ND	ND	ND
2		04.02.2021	46.05	76.21	11.78	23	ND	24.99	ND	ND	19	ND	ND	ND	ND
3		08.02.2021	43.98	71.86	10.55	21.75	ND	20.52	ND	ND	19.08	ND	ND	ND	ND
4		11.02.2021	37.02	68.94	10.44	25.1	ND	19.56	ND	ND	20.04	ND	ND	ND	ND
5	Feb., 2021	15.02.2021	37.08	70.4	9.85	21.02	ND	20.7	ND	ND	19.85	ND	ND	ND	ND
6		18.02.2021	40.02	67.22	10.77	23.04	ND	20.55	ND	ND	18.04	ND	ND	ND	ND
7		22.02.2021	41.3	70.2	9.72	21.22	ND	22.1	ND	ND	14.21	ND	ND	ND	ND
8		25.02.2021	37	70	15	20	ND	22.7	ND	ND	15.3	ND	ND	ND	ND
1		01.03.2021	43	71	11.5	22.9	ND	23	ND	ND	21.02	ND	ND	ND	ND
2		04.03.2021	44	75	11	24	ND	23	ND	ND	22	ND	ND	ND	ND
3	March, 2021	08.03.2021	40.75	71.8	11.02	26	ND	22	ND	ND	18.2	ND	ND	ND	ND
4		11.03.2021	43.1	76	12.76	22.8	ND	26.01	ND	ND	22.5	ND	ND	ND	ND
5		15.03.2021	39.29	70.88	10.04	22.13	ND	23.1	ND	ND	17.23	ND	ND	ND	ND

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6		18.03.2021	37.48	67.85	10.3	19.4	ND	21.4	ND	ND	13.8	ND	ND	ND	ND
7		22.03.2021	41.56	72.45	9.77	20.99	ND	27.1	ND	ND	19.33	ND	ND	ND	ND
8		25.03.2021	42.43	73.2	9.88	24.2	ND	24.2	ND	ND	18.5	ND	ND	ND	ND
9		30.03.2021	37.3	68	9.9	22	ND	22.3	ND	ND	13.6	ND	ND	ND	ND
Minimum			**36.32**	**67.22**	**8**	**16.7**	**0**	**18.2**	**0**	**0**	**12.99**	**0**	**0**	**0**	**0**
Maximum			**48.21**	**79.03**	**16**	**28.75**	**0**	**27.5**	**0**	**0**	**24.3**	**0**	**0**	**0**	**0**
Mean			**41.75**	**72.87**	**10.67**	**22.35**	**#DIV/0!**	**18.2**	**0**	**0**	**12.99**	**0**	**0**	**0**	**0**
Standard Deviation			**2.9**	**3.3**	**1.6**	**2.0**	**0.0**	**2.0**	**0.0**	**0.0**	**2.9**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**47.6**	**79.02**	**16**	**26**	**#NUM!**	**2.0475**	**0**	**0**	**2.91358**	**0**	**0**	**0**	**0**

Location 2 - PLL Colony

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (mg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	38.74	68.84	8.99	16.75	ND	20.44	ND	ND	17.02	ND	ND	ND	ND
2		05.10.2020	37.18	71.8	10.11	22.4	ND	18.52	ND	ND	25.1	ND	ND	ND	ND
3		08.10.2020	37.57	70.3	10.52	22.01	ND	20.24	ND	ND	21.65	ND	ND	ND	ND
4		12.10.2020	40.99	70.94	8.09	22.66	ND	20.87	ND	ND	21.85	ND	ND	ND	ND
5		15.10.2020	40.7	71.94	10.9	21.63	ND	21.76	ND	ND	23.87	ND	ND	ND	ND
6		19.10.2020	40.85	70.2	11.76	20.99	ND	24.87	ND	ND	21.56	ND	ND	ND	ND
7		22.10.2020	41.32	71	10.82	22.97	ND	21.74	ND	ND	22.74	ND	ND	ND	ND
8		26.10.2020	40.52	70.8	10.17	21.45	ND	21.56	ND	ND	22.62	ND	ND	ND	ND
9		29.10.2020	28.02	69.54	11.04	22.85	ND	21.04	ND	ND	22.09	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	40.01	70.33	10.74	21.85	ND	19.87	ND	ND	20.07	ND	ND	ND	ND
2		05.11.2020	42.89	77.22	11	25	ND	23	ND	ND	20.44	ND	ND	ND	ND
3		09.11.2020	40.02	70.84	12.42	21.87	ND	23.4	ND	ND	19.8	ND	ND	ND	ND
4		12.11.2020	39	71	9	21	ND	21	ND	ND	18	ND	ND	ND	ND
5		16.11.2020	42.55	75.7	12.75	28.1	ND	23.6	ND	ND	23.4	ND	ND	ND	ND
6		19.11.2020	41.55	77.89	11.4	23.8	ND	19.05	ND	ND	22.7	ND	ND	ND	ND

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7		23.11.2020	43.1	72.04	11.85	22.8	ND	21.7	ND	ND	21.4	ND	ND	ND	ND
8		26.11.2020	43.1	71.85	9.07	22.65	ND	22.89	ND	ND	21.87	ND	ND	ND	ND
1	Dec., 2020	01.12.2020	34.8	71.4	9.8	18.9	ND	28.9	ND	ND	25.4	ND	ND	ND	ND
2		04.12.2020	43.8	70.5	10.1	19.6	ND	25.9	ND	ND	24.8	ND	ND	ND	ND
3		07.12.2020	42.9	71.7	10.7	18.9	ND	24.5	ND	ND	21.7	ND	ND	ND	ND
4		10.12.2020	42.6	69.1	9.2	20.7	ND	23.9	ND	ND	23.3	ND	ND	ND	ND
5		14.12.2020	43.58	68.5	10.07	22.7	ND	23	ND	ND	21	ND	ND	ND	ND
6		17.12.2020	40	72	10	19	ND	22	ND	ND	21	ND	ND	ND	ND
7		21.12.2020	43.88	71.2	10.55	22.86	ND	21.77	ND	ND	22.69	ND	ND	ND	ND
8		24.12.2020	39	71.3	10	21	ND	18	ND	ND	22	ND	ND	ND	ND
9		28.12.2020	40.1	70.2	8.96	19.87	ND	22.8	ND	ND	22.4	ND	ND	ND	ND
1	Jan., 2021	04.01.2021	40	69	13	19	ND	21	ND	ND	14	ND	ND	ND	ND
2		07.01.2021	38.54	69	13	18	ND	21.8	ND	ND	14.9	ND	ND	ND	ND
3		11.01.2021	40.9	69.9	10.2	19.99	ND	24.02	ND	ND	17.2	ND	ND	ND	ND
4		14.01.2021	40.99	70.4	9.74	22.01	ND	22.4	ND	ND	14.2	ND	ND	ND	ND
5		18.01.2021	39.42	68.02	9.02	22.45	ND	20.55	ND	ND	19.32	ND	ND	ND	ND
6		21.01.2021	39.87	72.02	11.42	28.75	ND	22.45	ND	ND	20.47	ND	ND	ND	ND
7		25.01.2021	45.01	75.86	10.42	24.05	ND	23.02	ND	ND	20.1	ND	ND	ND	ND
8		28.01.2021	40.02	69.99	12.74	24.36	ND	22.44	ND	ND	20.08	ND	ND	ND	ND
1	Feb., 2021	01.02.2021	39.87	70.01	11.02	20.75	ND	22	ND	ND	18	ND	ND	ND	ND
2		04.02.2021	44	72.54	10.24	20.87	ND	21.7	ND	ND	21.3	ND	ND	ND	ND
3		08.02.2021	36.8	68.9	13	20	ND	21.99	ND	ND	15.3	ND	ND	ND	ND
4		11.02.2021	44.1	73.86	10.85	23.66	ND	24.96	ND	ND	22.08	ND	ND	ND	ND
5		15.02.2021	43.55	71.4	12.74	25.11	ND	21.4	ND	ND	24.89	ND	ND	ND	ND
6		18.02.2021	39.08	67.99	10.78	25.98	ND	22.1	ND	ND	18.88	ND	ND	ND	ND
7		22.02.2021	40	71	14	19	ND	21.32	ND	ND	15.89	ND	ND	ND	ND
8		25.02.2021	33	64.8	12.1	18.3	ND	20.74	ND	ND	21.41	ND	ND	ND	ND
1	March, 2019	01.03.2021	42.3	74	10.2	22.4	ND	26.3	ND	ND	22.8	ND	ND	ND	ND
2		04.03.2021	40	74	13	23	ND	28	ND	ND	19.02	ND	ND	ND	ND

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3		08.03.2021	39.8	74.02	11.41	26.52	ND	23.4	ND	ND	28.2	ND	ND	ND	ND
4		11.03.2021	43.1	76.5	11.07	22.32	ND	24.2	ND	ND	21.44	ND	ND	ND	ND
5		15.03.2021	43.1	76.5	11.07	22.32	ND	24.2	ND	ND	21.44	ND	ND	ND	ND
6		18.03.2021	43.53	75.24	9.87	21.02	ND	24.21	ND	ND	19.59	ND	ND	ND	ND
7		22.03.2021	37.3	65.8	11.22	22	ND	24.9	ND	ND	19	ND	ND	ND	ND
8		25.03.2021	41.77	72.29	10.87	23.5	ND	23.1	ND	ND	19.4	ND	ND	ND	ND
9		30.03.2021	41.5	72.9	12.04	25.28	ND	25.8	ND	ND	22	ND	ND	ND	ND
Minimum			**28.02**	**64.8**	**8.09**	**16.75**	**0**	**18**	**0**	**0**	**14**	**0**	**0**	**0**	**0**
Maximum			**45.01**	**77.89**	**14**	**28.75**	**0**	**28.9**	**0**	**0**	**28.2**	**0**	**0**	**0**	**0**
Mean			**40.52**	**71.45**	**10.88**	**22.06**	**#DIV/0!**	**18**	**0**	**0**	**14**	**0**	**0**	**0**	**0**
Standard Deviation			**3.0**	**2.7**	**1.3**	**2.5**	**0.0**	**2.2**	**0.0**	**0.0**	**2.9**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**44.1**	**77.22**	**13**	**28.1**	**#NUM!**	**2.16376**	**0**	**0**	**2.90926**	**0**	**0**	**0**	**0**

Location 3 - DM Plant

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (mg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	50.14	76.02	9.33	21.74	ND	22.1	ND	ND	20.4	ND	ND	ND	ND
2		05.10.2020	40.85	77.42	12.75	22.63	ND	19.63	ND	ND	21.98	ND	ND	ND	ND
3		08.10.2020	40.98	73.02	10.04	19.85	ND	22.02	ND	ND	20.86	ND	ND	ND	ND
4		12.10.2020	42.12	75.85	10.96	21.77	ND	21.4	ND	ND	20.98	ND	ND	ND	ND
5		15.10.2020	43.2	73.8	9.52	16.87	ND	23.09	ND	ND	21.77	ND	ND	ND	ND
6		19.10.2020	43.7	76.7	11.01	23.18	ND	24.48	ND	ND	25.1	ND	ND	ND	ND
7		22.10.2020	40.68	76.82	11.03	26.02	ND	22.4	ND	ND	24.08	ND	ND	ND	ND
		26.10.2020	45.89	70.63	9.87	22.45	ND	20.77	ND	ND	21.75	ND	ND	ND	ND
8		29.10.2020	41.2	76.02	9.02	23.54	ND	24.32	ND	ND	27.01	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	37.3	68	9.9	22	ND	22.3	ND	ND	13.6	ND	ND	ND	ND
2		05.11.2020	41.99	76.02	12.01	23	ND	20	ND	ND	21	ND	ND	ND	ND
3		09.11.2020	43.36	78.2	12.07	22.74	ND	23.4	ND	ND	18.3	ND	ND	ND	ND
4		12.11.2020	44.98	76.55	9.99	23.44	ND	23.55	ND	ND	19.2	ND	ND	ND	ND

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5		16.11.2020	42.7	77.5	11.54	24.5	ND	21.1	ND	ND	20.33	ND	ND	ND	ND
6		19.11.2020	46.98	76.5	8.99	22.4	ND	22.96	ND	ND	21.78	ND	ND	ND	ND
7		23.11.2020	44.1	77.86	10.85	23.66	ND	24.96	ND	ND	22.08	ND	ND	ND	ND
8		26.11.2020	43.02	76.71	10.45	23.75	ND	22.95	ND	ND	22.85	ND	ND	ND	ND
1	Dec., 2020	01.12.2020	45.8	70.18	8.5	18.9	ND	23.04	ND	ND	23.7	ND	ND	ND	ND
2		04.12.2020	42.8	71.7	10.2	17.4	ND	23.4	ND	ND	25.9	ND	ND	ND	ND
3		07.12.2020	42.4	71.9	10.1	17.8	ND	25.2	ND	ND	21.3	ND	ND	ND	ND
4		10.12.2020	40.8	70.1	10.2	22.6	ND	23.9	ND	ND	21.7	ND	ND	ND	ND
5		14.12.2020	43.9	68.8	9.55	24.1	ND	22.95	ND	ND	23.7	ND	ND	ND	ND
6		17.12.2020	42.6	68.3	11.99	23.67	ND	21.74	ND	ND	22.92	ND	ND	ND	ND
7		21.12.2020	41.33	68.8	9.66	24.5	ND	24	ND	ND	26.1	ND	ND	ND	ND
8		24.12.2020	42.98	68.35	10.52	20.69	ND	22.77	ND	ND	21.65	ND	ND	ND	ND
9		28.12.2020	43	71	10	26	ND	22	ND	ND	24	ND	ND	ND	ND
1	Jan., 2021	04.01.2021	38	68	14	21	ND	23.2	ND	ND	15.8	ND	ND	ND	ND
2		07.01.2021	36.97	70.12	13	18	ND	21.8	ND	ND	14.9	ND	ND	ND	ND
3		11.01.2021	40.75	69.89	11	19	ND	22	ND	ND	16	ND	ND	ND	ND
4		14.01.2021	40.21	70.65	11.02	21.99	ND	23.55	ND	ND	18.2	ND	ND	ND	ND
5		18.01.2021	39.85	69.98	12.05	22.85	ND	23.5	ND	ND	19.99	ND	ND	ND	ND
6		21.01.2021	44.02	70.87	11.74	23.88	ND	21.99	ND	ND	21.45	ND	ND	ND	ND
7		25.01.2021	45.22	70.48	11.04	24.08	ND	22.55	ND	ND	20.4	ND	ND	ND	ND
8		28.01.2021	46.8	74.2	11.4	21.9	ND	23.77	ND	ND	20.4	ND	ND	ND	ND
1	Feb., 2021	01.02.2021	40.35	72.54	11.44	23.54	ND	23.01	ND	ND	22.45	ND	ND	ND	ND
2		04.02.2021	36.97	70.12	13	18	ND	21.8	ND	ND	14.9	ND	ND	ND	ND
3		08.02.2021	46.79	74.75	10.65	23.88	ND	20.99	ND	ND	22.78	ND	ND	ND	ND
4		11.02.2021	42.04	70.85	9.45	23.88	ND	23.15	ND	ND	21.49	ND	ND	ND	ND
5		15.02.2021	46.58	77.23	11.87	24.55	ND	23.1	ND	ND	20.74	ND	ND	ND	ND
6		18.02.2021	40.08	72.04	12.02	24.05	ND	21.98	ND	ND	22.07	ND	ND	ND	ND
7		22.02.2021	32	70	12	19	ND	21.7	ND	ND	15.6	ND	ND	ND	ND
8		25.02.2021	36	64	14	20	ND	20.99	ND	ND	15.3	ND	ND	ND	ND
1	March, 2021	01.03.2021	43.22	75.2	9.32	24.85	ND	22.9	ND	ND	26.1	ND	ND	ND	ND

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2		04.03.2021	40.01	72	11.19	22	ND	27.3	ND	ND	21.2	ND	ND	ND	ND
3		08.03.2021	41.7	72.9	12.32	21.77	ND	24.2	ND	ND	18.4	ND	ND	ND	ND
4		11.03.2021	46.8	75.8	11.3	21	ND	24	ND	ND	18	ND	ND	ND	ND
5		15.03.2021	48.2	77.4	9.74	23.21	ND	22.8	ND	ND	17.45	ND	ND	ND	ND
6		18.03.2021	40.56	69.9	10.3	24	ND	25	ND	ND	22.4	ND	ND	ND	ND
7		22.03.2021	41.56	72.45	9.77	20.99	ND	27.1	ND	ND	19.33	ND	ND	ND	ND
8		25.03.2021	43.2	73.98	12.8	23.6	ND	24.1	ND	ND	18.7	ND	ND	ND	ND
9		30.03.2021	38	72	12	23	ND	25.9	ND	ND	22	ND	ND	ND	ND
Minimum			**32**	**64**	**8.5**	**16.87**	**0**	**19.63**	**0**	**0**	**13.6**	**0**	**0**	**0**	**0**
Maximum			**50.14**	**78.2**	**14**	**26.02**	**0**	**27.3**	**0**	**0**	**27.01**	**0**	**0**	**0**	**0**
Mean			**42.25**	**72.75**	**10.95**	**22.22**	**#DIV/0!**	**19.63**	**0**	**0**	**13.6**	**0**	**0**	**0**	**0**
Standard Deviation			**3.3**	**3.4**	**1.3**	**2.2**	**0.0**	**1.6**	**0.0**	**0.0**	**3.1**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**48.2**	**77.86**	**14**	**26**	**#NUM!**	**1.55154**	**0**	**0**	**3.10441**	**0**	**0**	**0**	**0**

Location 4 - Residential Colony

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (mg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1		01.10.2020	42.02	76.03	9.98	22.4	ND	24.1	ND	ND	23.54	ND	ND	ND	ND
2		05.10.2020	39.98	72.54	9.87	26.24	ND	20.99	ND	ND	24.75	ND	ND	ND	ND
3		08.10.2020	41.02	76.5	9.85	21.44	ND	20.85	ND	ND	22.8	ND	ND	ND	ND
4		12.10.2020	41.65	75.22	11.45	19.65	ND	19.85	ND	ND	22.4	ND	ND	ND	ND
5	Oct., 2020	15.10.2020	42.55	77.85	8.07	21.89	ND	23.99	ND	ND	21.1	ND	ND	ND	ND
6		19.10.2020	41.55	76.2	11.2	21.75	ND	20.55	ND	ND	16.75	ND	ND	ND	ND
7		22.10.2020	42.51	75.87	11.04	23.82	ND	21.04	ND	ND	21.04	ND	ND	ND	ND
8		26.10.2020	46.99	76.87	9.01	27.74	ND	22.86	ND	ND	19.87	ND	ND	ND	ND
9		29.10.2020	40.42	70.23	9.02	24.09	ND	23.74	ND	ND	23.41	ND	ND	ND	ND
1		02.11.2020	40	71	13	23	ND	29	ND	ND	18	ND	ND	ND	ND
2	Nov., 2020	05.11.2020	42.02	76.36	11.07	26.05	ND	25	ND	ND	19.08	ND	ND	ND	ND
3		09.11.2020	48.1	76.32	9.85	21.07	ND	23.99	ND	ND	19.08	ND	ND	ND	ND

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4		12.11.2020	44.8	76.3	12.99	21.4	ND	22.8	ND	ND	15.9	ND	ND	ND	ND
5		16.11.2020	41.35	76.3	9.75	26.4	ND	23.78	ND	ND	24.2	ND	ND	ND	ND
6		19.11.2020	45.87	76.66	12.08	23.75	ND	20.53	ND	ND	20.7	ND	ND	ND	ND
7		23.11.2020	37.02	68.94	10.44	25.1	ND	19.56	ND	ND	20.04	ND	ND	ND	ND
8		26.11.2020	45.32	78.7	10.85	24.55	ND	20.95	ND	ND	21.42	ND	ND	ND	ND
1		01.12.2020	41.7	70.8	10.1	18.9	ND	27.9	ND	ND	20.2	ND	ND	ND	ND
2		04.12.2020	41.2	66.7	10.1	18.9	ND	21.9	ND	ND	23.4	ND	ND	ND	ND
3		07.12.2020	49.6	68.2	11.8	19.7	ND	25.1	ND	ND	23.5	ND	ND	ND	ND
4		10.12.2020	41.9	69.4	9.7	19.3	ND	23.8	ND	ND	22.6	ND	ND	ND	ND
5	Dec., 2020	14.12.2020	45.1	67.2	8.99	24.32	ND	20.55	ND	ND	24.5	ND	ND	ND	ND
6		17.12.2020	41	71	9	21	ND	19	ND	ND	16	ND	ND	ND	ND
7		21.12.2020	42.1	69.4	9.33	22.4	ND	26.1	ND	ND	21.5	ND	ND	ND	ND
8		24.12.2020	44.2	67.3	9.01	23.6	ND	19.99	ND	ND	21.75	ND	ND	ND	ND
9		28.12.2020	40.33	72.88	9.12	22.6	ND	25.8	ND	ND	21.7	ND	ND	ND	ND
1		04.01.2021	38.9	70	16	20	ND	24	ND	ND	15	ND	ND	ND	ND
2		07.01.2021	36	69.21	14	18	ND	21.8	ND	ND	16.2	ND	ND	ND	ND
3		11.01.2021	40.78	70.82	10.5	21.2	ND	22.7	ND	ND	18.8	ND	ND	ND	ND
4		14.01.2021	40.85	70.32	10.02	22.04	ND	22.4	ND	ND	19.9	ND	ND	ND	ND
5	Jan., 2021	18.01.2021	40.32	70.84	10.04	25.1	ND	23.01	ND	ND	20.33	ND	ND	ND	ND
6		21.01.2021	41.75	74.21	11.88	24.42	ND	22.87	ND	ND	18.77	ND	ND	ND	ND
7		25.01.2021	44.25	72.02	11.85	24.01	ND	21.15	ND	ND	24.008	ND	ND	ND	ND
8		28.01.2021	43.1	72.04	11.85	22.8	ND	21.7	ND	ND	21.4	ND	ND	ND	ND
1		01.02.2021	39.02	69.95	11.41	24.04	ND	22.41	ND	ND	16.11	ND	ND	ND	ND
2		04.02.2021	43.8	75.2	9.74	18.74	ND	24.01	ND	ND	22	ND	ND	ND	ND
3		08.02.2021	36.8	68.9	13	20	ND	21.99	ND	ND	15.3	ND	ND	ND	ND
4		11.02.2021	42.02	71.22	11.08	24.88	ND	23.7	ND	ND	20.75	ND	ND	ND	ND
5	Feb., 2021	15.02.2021	47.2	76.85	10.44	24.1	ND	22.11	ND	ND	18.85	ND	ND	ND	ND
6		18.02.2021	41.01	72.23	10.85	25.42	ND	21.77	ND	ND	20.87	ND	ND	ND	ND
7		22.02.2021	35	70	15	20	ND	22.1	ND	ND	16.1	ND	ND	ND	ND
8		25.02.2021	39	69	14	20	ND	22.1	ND	ND	15.47	ND	ND	ND	ND

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1	March, 2021	01.03.2021	41	75	10.55	24.6	ND	26.3	ND	ND	24.5	ND	ND	ND	ND
2		04.03.2021	37.3	73	9.9	22	ND	22.3	ND	ND	13.6	ND	ND	ND	ND
3		08.03.2021	38.7	74.63	10.3	29	ND	28	ND	ND	16.5	ND	ND	ND	ND
4		11.03.2021	42.4	74.9	12.72	22.28	ND	22	ND	ND	16.3	ND	ND	ND	ND
5		15.03.2021	41.9	71.2	12.01	23.07	ND	25.6	ND	ND	18.22	ND	ND	ND	ND
6		18.03.2021	38.9	70.2	12	25	ND	23	ND	ND	22	ND	ND	ND	ND
7		22.03.2021	43.22	72.47	23.1	19.3	ND	24.1	ND	ND	20.1	ND	ND	ND	ND
8		25.03.2021	44.08	73.63	10.44	23.4	ND	27	ND	ND	21	ND	ND	ND	ND
9		30.03.2021	39	69	12	21	ND	23	ND	ND	15	ND	ND	ND	ND
Minimum			**35**	**66.7**	**8.07**	**18**	**0**	**19**	**0**	**0**	**13.6**	**0**	**0**	**0**	**0**
Maximum			**49.6**	**78.7**	**23.1**	**29**	**0**	**29**	**0**	**0**	**24.75**	**0**	**0**	**0**	**0**
Mean			**41.70**	**72.50**	**11.20**	**22.66**	**#DIV/0!**	**19**	**0**	**0**	**13.6**	**0**	**0**	**0**	**0**
Standard Deviation			**3.0**	**3.2**	**2.4**	**2.5**	**0.0**	**2.2**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**48.1**	**77.85**	**16**	**27.74**	**#NUM!**	**2.23535**	**0**	**0**	**3.00365**	**0**	**0**	**0**	**0**

OUTSIDE THE GVK PLANT PREMISES

Location 5 - Goindwal Sahib

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (mg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	45.9	77.4	9.87	24.8	ND	20.44	ND	ND	20.08	ND	ND	ND	ND
2		05.10.2020	42.04	78.21	10.96	23.45	ND	22.01	ND	ND	16.85	ND	ND	ND	ND
3		08.10.2020	41.21	78.82	9.86	22.51	ND	20.74	ND	ND	21.78	ND	ND	ND	ND
4		12.10.2020	41.99	76.44	9.55	20.02	ND	20.7	ND	ND	19.5	ND	ND	ND	ND
5		15.10.2020	44.02	77.6	11.04	23.01	ND	21.87	ND	ND	23.07	ND	ND	ND	ND
6		19.10.2020	41.88	77.9	11.02	24.32	ND	20.98	ND	ND	22.88	ND	ND	ND	ND
7		22.10.2020	42.55	77.87	11.68	22.42	ND	20.63	ND	ND	21.9	ND	ND	ND	ND
8		26.10.2020	49.66	75.08	9.75	23.74	ND	21.07	ND	ND	22.98	ND	ND	ND	ND
9		29.10.2020	43.74	75.2	11.04	22.8	ND	22.75	ND	ND	22.4	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	42.7	75.5	10.2	23	ND	22.7	ND	ND	16.2	ND	ND	ND	ND

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2		05.11.2020	47.01	77.02	10.07	22.02	ND	24	ND	ND	23.22	ND	ND	ND	ND
3		09.11.2020	41.82	76.87	9.91	21.3	ND	24	ND	ND	11.9	ND	ND	ND	ND
4		12.11.2020	44.89	77.88	10.33	25.4	ND	24.7	ND	ND	21.5	ND	ND	ND	ND
5		16.11.2020	44.08	77.6	11.44	23.04	ND	21.87	ND	ND	23.07	ND	ND	ND	ND
6		19.11.2020	43	77	10.3	23.97	ND	23.1	ND	ND	22.5	ND	ND	ND	ND
7		23.11.2020	42.02	74.22	11.08	24.88	ND	23.7	ND	ND	20.75	ND	ND	ND	ND
8		26.11.2020	47.22	79.86	11.02	24.75	ND	20.76	ND	ND	21.99	ND	ND	ND	ND
1		01.12.2020	48.9	72.5	9.6	19.8	ND	24.7	ND	ND	22.3	ND	ND	ND	ND
2		04.12.2020	40.2	72.9	8.8	16.9	ND	23.5	ND	ND	21.7	ND	ND	ND	ND
3		07.12.2020	41.9	72.4	9.5	21.8	ND	25.1	ND	ND	23.4	ND	ND	ND	ND
4		10.12.2020	44.9	69.4	11.7	22.3	ND	23.8	ND	ND	21.2	ND	ND	ND	ND
5	Dec., 2020	14.12.2020	42.1	71.2	11.75	24	ND	22.7	ND	ND	23	ND	ND	ND	ND
6		17.12.2020	44.7	71.4	13.02	24.09	ND	24.74	ND	ND	24.52	ND	ND	ND	ND
7		21.12.2020	42.55	69.7	11.98	22.68	ND	21.67	ND	ND	22	ND	ND	ND	ND
8		24.12.2020	46.3	71.66	10.33	23.61	ND	24.02	ND	ND	22.55	ND	ND	ND	ND
9		28.12.2020	45.8	71.2	12.3	23.2	ND	24.5	ND	ND	18.5	ND	ND	ND	ND
1		04.01.2021	41	75	16	21	ND	23.2	ND	ND	15.8	ND	ND	ND	ND
2		07.01.2021	36	69.87	14	18	ND	21.8	ND	ND	16.2	ND	ND	ND	ND
3		11.01.2021	40.78	70.01	10.2	19.9	ND	22	ND	ND	12.4	ND	ND	ND	ND
4	Jan., 2021	14.01.2021	41.3	70.2	9.72	21.22	ND	22.1	ND	ND	14.21	ND	ND	ND	ND
5		18.01.2021	40.21	70.82	10.86	23.51	ND	22.74	ND	ND	20.7	ND	ND	ND	ND
6		21.01.2021	42.77	72.85	10.11	24.42	ND	22.8	ND	ND	20.47	ND	ND	ND	ND
7		25.01.2021	46.58	72.23	11.87	24.55	ND	23.1	ND	ND	20.74	ND	ND	ND	ND
8		28.01.2021	44.85	75.89	12.03	25.12	ND	22.3	ND	ND	24.1	ND	ND	ND	ND
1		01.02.2021	43.21	73.11	8.99	19.85	ND	22.3	ND	ND	21.72	ND	ND	ND	ND
2		04.02.2021	47.56	76.52	12.85	22.68	ND	24.41	ND	ND	23.12	ND	ND	ND	ND
3		08.02.2021	49.01	74.32	10.45	22.54	ND	23.04	ND	ND	19.32	ND	ND	ND	ND
4	Feb., 2021	11.02.2021	42.02	71.89	12.55	21.98	ND	22.05	ND	ND	23.01	ND	ND	ND	ND
5		15.02.2021	45.22	70.48	11.04	24.08	ND	22.55	ND	ND	20.4	ND	ND	ND	ND
6		18.02.2021	36.32	72.22	10.42	23.02	ND	21.4	ND	ND	23.1	ND	ND	ND	ND

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7		22.02.2021	40	72	13	19	ND	21.6	ND	ND	15.7	ND	ND	ND	ND
8		25.02.2021	33	65	12	16	ND	22.1	ND	ND	14.9	ND	ND	ND	ND
1	March, 2021	01.03.2021	42.5	76	10.47	24.55	ND	26	ND	ND	20	ND	ND	ND	ND
2		04.03.2021	42.95	72.5	10.6	23	ND	26	ND	ND	22.9	ND	ND	ND	ND
9		30.03.2021	42	72	13	19	ND	24.6	ND	ND	13.9	ND	ND	ND	ND
Minimum			**33**	**65**	**8.8**	**16**	**0**	**20.44**	**0**	**0**	**11.9**	**0**	**0**	**0**	**0**
Maximum			**49.66**	**79.86**	**16**	**25.4**	**0**	**26**	**0**	**0**	**24.52**	**0**	**0**	**0**	**0**
Mean			**43.12**	**73.91**	**11.07**	**22.38**	**#DIV/0!**	**20.44**	**0**	**0**	**11.9**	**0**	**0**	**0**	**0**
Standard Deviation			**3.3**	**3.2**	**1.4**	**2.2**	**0.0**	**1.5**	**0.0**	**0.0**	**3.3**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**49.088**	**78.9448**	**14.24**	**25.1536**	**#NUM!**	**1.45169**	**0**	**0**	**3.31818**	**0**	**0**	**0**	**0**

Location 6 - Hansawala

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (mg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	47.9	77.5	11.45	20.65	ND	19.8	ND	ND	21.45	ND	ND	ND	ND
2		05.10.2020	42.42	78.02	10.02	22.45	ND	20.56	ND	ND	17.32	ND	ND	ND	ND
3		08.10.2020	39.99	76.88	10.56	22.64	ND	20.4	ND	ND	19.87	ND	ND	ND	ND
4		12.10.2020	46.52	77.99	11.08	21.91	ND	22.07	ND	ND	22.73	ND	ND	ND	ND
5		15.10.2020	42.63	76.45	10.04	22.89	ND	20.01	ND	ND	20.75	ND	ND	ND	ND
6		19.10.2020	42.7	77.74	11.82	23.75	ND	24.1	ND	ND	19.04	ND	ND	ND	ND
7		22.10.2020	45.25	76.95	10.42	22.74	ND	21.4	ND	ND	20.19	ND	ND	ND	ND
8		26.10.2020	45.02	78.2	10.75	24.55	ND	23.01	ND	ND	20.96	ND	ND	ND	ND
9		29.10.2020	42.1	75.6	10.02	21.74	ND	21.3	ND	ND	20.4	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	42.3	75.8	11.22	22	ND	24.9	ND	ND	21	ND	ND	ND	ND
2		05.11.2020	43.83	74.98	12.09	29.21	ND	22	ND	ND	15.74	ND	ND	ND	ND
3		09.11.2020	41.02	76.96	10.9	22.25	ND	22.4	ND	ND	19.09	ND	ND	ND	ND
4		12.11.2020	46.56	76.3	10.9	26.33	ND	25.85	ND	ND	24.79	ND	ND	ND	ND
5		16.11.2020	42.85	73.1	11.74	22.8	ND	20.99	ND	ND	19.66	ND	ND	ND	ND

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6		19.11.2020	44.85	75.89	12.02	25.12	ND	22.3	ND	ND	24.1	ND	ND	ND	ND
7		23.11.2020	43.55	74.4	12.74	25.11	ND	21.4	ND	ND	24.89	ND	ND	ND	ND
8		26.11.2020	44.12	77.85	9.65	23.04	ND	21.04	ND	ND	20.87	ND	ND	ND	ND
1		01.12.2020	44.2	69.8	8.4	17.9	ND	23.3	ND	ND	23.7	ND	ND	ND	ND
2		04.12.2020	40.3	69.8	10.9	20.6	ND	24.1	ND	ND	22.7	ND	ND	ND	ND
4		07.12.2020	40.5	71.8	9.7	18.4	ND	25.1	ND	ND	23.6	ND	ND	ND	ND
5		10.12.2020	42.5	70.8	10.9	21.7	ND	22.6	ND	ND	20.2	ND	ND	ND	ND
6	Dec., 2020	14.12.2020	42.3	69.4	10.88	23.42	ND	21.74	ND	ND	21.85	ND	ND	ND	ND
7		17.12.2020	43.22	69.7	12.8	25.7	ND	24.65	ND	ND	21.8	ND	ND	ND	ND
		21.12.2020	43.3	69.2	11.42	24.7	ND	21.04	ND	ND	24.99	ND	ND	ND	ND
		24.12.2020	47.2	68.4	12.3	26	ND	24	ND	ND	25	ND	ND	ND	ND
8		28.12.2020	45.2	69.82	12.34	23.62	ND	23.67	ND	ND	21.86	ND	ND	ND	ND
1		04.01.2021	37.98	68	14	21	ND	23.2	ND	ND	15.8	ND	ND	ND	ND
2		07.01.2021	40.5	68.88	11	19	ND	24	ND	ND	16	ND	ND	ND	ND
3		11.01.2021	40.33	70.32	10.02	22	ND	22.9	ND	ND	17.8	ND	ND	ND	ND
4	Jan., 2021	14.01.2021	39.01	69.03	10.07	23.54	ND	20.98	ND	ND	15.22	ND	ND	ND	ND
5		18.01.2021	41.01	72.23	10.85	25.42	ND	21.77	ND	ND	20.87	ND	ND	ND	ND
6		21.01.2021	40.02	67.22	10.77	23.04	ND	20.55	ND	ND	18.04	ND	ND	ND	ND
7		25.01.2021	41.66	71.44	11.74	26.05	ND	22.99	ND	ND	21.08	ND	ND	ND	ND
8		28.01.2021	46.98	74.5	8.99	22.4	ND	22.96	ND	ND	21.78	ND	ND	ND	ND
1		01.02.2021	40.86	72.14	10.42	23.54	ND	25	ND	ND	21.87	ND	ND	ND	ND
2		04.02.2021	41.02	72.42	10.49	23.08	ND	22.11	ND	ND	18.05	ND	ND	ND	ND
3		08.02.2021	43.1	72.04	11.85	22.8	ND	21.7	ND	ND	21.4	ND	ND	ND	ND
4	Feb., 2021	11.02.2021	40.02	69.99	12.74	24.36	ND	22.44	ND	ND	20.05	ND	ND	ND	ND
5		15.02.2021	40.07	71.02	9.88	23.45	ND	21.04	ND	ND	20.99	ND	ND	ND	ND
6		18.02.2021	36.88	68.2	10.02	20.4	ND	24.11	ND	ND	20.77	ND	ND	ND	ND
7		22.02.2021	41	72	14	19	ND	21.7	ND	ND	15.1	ND	ND	ND	ND
8		25.02.2021	42	旺	16	21	ND	22.8	ND	ND	15.2	ND	ND	ND	ND
7	March, 2021	22.03.2021	41.85	73.27	10.77	23.5	ND	23.5	ND	ND	18.1	ND	ND	ND	ND
8		25.03.2021	43.65	74.86	12.07	27.07	ND	22.5	ND	ND	19.08	ND	ND	ND	ND

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Minimum	36.88	67.22	8.4	17.9	0	19.8	0	0	15.1	0	0	0	0
Maximum	47.9	78.2	16	29.21	0	25.85	0	0	25	0	0	0	0
Mean	42.51	72.91	11.20	23.00	#DIV/0!	19.8	0	0	15.1	0	0	0	0
Standard Deviation	2.5	3.4	1.4	2.3	0.0	1.5	0.0	0.0	2.7	0.0	0.0	0.0	0.0
98 Percentile	47.298	78.0452	14.28	27.3696	#NUM!	1.48355	0	0	2.74852	0	0	0	0

Location 7 - Vairowal

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (µg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	45.02	75.2	8.95	18.42	ND	21.44	ND	ND	20.4	ND	ND	ND	ND
2		05.10.2020	39.54	73.42	11.75	22.92	ND	20.52	ND	ND	20.44	ND	ND	ND	ND
3		08.10.2020	45.2	75.2	11.85	20.68	ND	20.41	ND	ND	22.12	ND	ND	ND	ND
4		12.10.2020	24.05	76.51	11.02	21.04	ND	22.56	ND	ND	20.67	ND	ND	ND	ND
5		15.10.2020	44	78	10	22.8	ND	20.7	ND	ND	21.9	ND	ND	ND	ND
6		19.10.2020	42.65	77.55	10.02	21.79	ND	24.8	ND	ND	21.42	ND	ND	ND	ND
7		22.10.2020	42.55	77.63	9.65	22.41	ND	21.74	ND	ND	26.87	ND	ND	ND	ND
8		26.10.2020	43.02	78.98	13.44	24.91	ND	26.77	ND	ND	23.75	ND	ND	ND	ND
9		29.10.2020	42.21	78.33	10.44	24.25	ND	24.2	ND	ND	21.45	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	41.9	78.3	11.7	25	ND	24	ND	ND	17	ND	ND	ND	ND
2		05.11.2020	47.01	77.02	10.07	22.02	ND	24	ND	ND	23.22	ND	ND	ND	ND
3		09.11.2020	41.82	76.87	9.91	21.3	ND	24	ND	ND	11.9	ND	ND	ND	ND
4		12.11.2020	44.89	77.88	10.33	25.4	ND	24.7	ND	ND	21.5	ND	ND	ND	ND
5		16.11.2020	41.75	74.43	11.03	24.55	ND	25.2	ND	ND	19.98	ND	ND	ND	ND
6		19.11.2020	41	78	9	22.88	ND	21	ND	ND	20	ND	ND	ND	ND
7		23.11.2020	42.02	76.5	12.55	21.98	ND	22.05	ND	ND	23.01	ND	ND	ND	ND
8		26.11.2020	42.03	77.06	10.55	22.74	ND	20.56	ND	ND	21.99	ND	ND	ND	ND
1	Dec., 2020	01.12.2020	39.6	71.5	10.4	19.2	ND	24.8	ND	ND	23.1	ND	ND	ND	ND
2		04.12.2020	39.5	69.7	9.1	16.9	ND	26.5	ND	ND	23.4	ND	ND	ND	ND
3		07.12.2020	44.8	71.6	10.4	20.9	ND	23.5	ND	ND	21.7	ND	ND	ND	ND

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4		10.12.2020	37.8	72.3	11.6	21.1	ND	22.4	ND	ND	23.5	ND	ND	ND	ND
5		14.12.2020	41.3	71.2	9.72	21.22	ND	22.1	ND	ND	14.21	ND	ND	ND	ND
6		17.12.2020	45.02	69.3	8.75	21.67	ND	20	ND	ND	19	ND	ND	ND	ND
7		21.12.2020	42.54	71.65	10.82	23.67	ND	23.8	ND	ND	20.66	ND	ND	ND	ND
8		24.12.2020	39.66	70.2	11.3	24.5	ND	22.1	ND	ND	22.4	ND	ND	ND	ND
9		28.12.2020	43.5	69.2	11.86	24.73	ND	23.65	ND	ND	22.3	ND	ND	ND	ND
1	Jan., 2021	04.01.2021	37.4	69	13	18	ND	21.8	ND	ND	14.9	ND	ND	ND	ND
2		07.01.2021	41.45	71.02	11	19	ND	21	ND	ND	21	ND	ND	ND	ND
3		11.01.2021	40.5	70.9	11.1	21.9	ND	21.99	ND	ND	19.1	ND	ND	ND	ND
4		14.01.2021	39.33	69.45	11.04	22.89	ND	22.88	ND	ND	19.98	ND	ND	ND	ND
5		18.01.2021	40.08	72.04	12.02	24.05	ND	21.98	ND	ND	22.07	ND	ND	ND	ND
6		21.01.2021	43.54	75.1	11.88	23.41	ND	21.52	ND	ND	19.88	ND	ND	ND	ND
7		25.01.2021	47.2	76.85	10.44	21.1	ND	22.11	ND	ND	18.85	ND	ND	ND	ND
8		28.01.2021	42.55	73.2	11.78	22.85	ND	21.5	ND	ND	19.87	ND	ND	ND	ND
1	Feb., 2021	01.02.2021	42.42	70.99	9.35	16.78	ND	22.54	ND	ND	21.54	ND	ND	ND	ND
2		04.02.2021	43.57	70.3	11.52	27.01	ND	25.24	ND	ND	23.65	ND	ND	ND	ND
3		08.02.2021	49.01	74.32	10.45	22.54	ND	23.04	ND	ND	19.32	ND	ND	ND	ND
4		11.02.2021	42.88	73.45	9.89	23.55	ND	24.1	ND	ND	21.74	ND	ND	ND	ND
5		15.02.2021	44.25	72.02	11.85	24.01	ND	21.15	ND	ND	24.08	ND	ND	ND	ND
6		18.02.2021	39.01	69.03	10.07	23.54	ND	20.98	ND	ND	15.22	ND	ND	ND	ND
7		22.02.2021	35	68	11	20	ND	20.9	ND	ND	15.2	ND	ND	ND	ND
8		25.02.2021	32	65	12	18	ND	22.4	ND	ND	15.8	ND	ND	ND	ND
3	March, 2021	08.03.2021	42.8	73.9	13.44	20.23	ND	21.99	ND	ND	18.96	ND	ND	ND	ND
4		11.03.2021	46.7	73.89	10.44	22.04		26	ND	ND	17.44	ND	ND	ND	ND
Minimum			**24.05**	**65**	**8.75**	**16.78**	**0**	**20**	**0**	**0**	**11.9**	**0**	**0**	**0**	**0**
Maximum			**49.01**	**78.98**	**13.44**	**27.01**	**0**	**26.77**	**0**	**0**	**26.87**	**0**	**0**	**0**	**0**
Mean			**41.68**	**73.45**	**10.87**	**22.04**	**#DIV/0!**	**20**	**0**	**0**	**11.9**	**0**	**0**	**0**	**0**
Standard Deviation			**4.2**	**3.5**	**1.1**	**2.3**	**0.0**	**1.7**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**47.4534**	**78.421**	**13.44**	**25.6254**	**#NUM!**	**1.73314**	**0**	**0**	**3.01595**	**0**	**0**	**0**	**0**

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Location 8 - Mundi Village

Sr. No.	Month	Date of Monitoring	PM-2.5 (µg/m3)	PM-10 (µg/m3)	SO2 (µg/m3)	NOX (µg/m3)	CO (µg/m3)	O3 (µg/m3)	Hg (µg/m3)	Pb (µg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	As (ng/m3)	Ni (ng/m3)
1	Oct., 2020	01.10.2020	46.07	78.1	10.44	22.85	ND	20.01	ND	ND	19.22	ND	ND	ND	ND
2		05.10.2020	37.32	76.22	11.42	26.02	ND	24.4	ND	ND	25.1	ND	ND	ND	ND
3		08.10.2020	42.2	76.1	8.99	23.45	ND	23.65	ND	ND	21.44	ND	ND	ND	ND
4		12.10.2020	43.2	79.8	12.55	22.07	ND	20.27	ND	ND	18.19	ND	ND	ND	ND
5		15.10.2020	42.92	76.86	9.01	23.12	ND	22.09	ND	ND	22.12	ND	ND	ND	ND
6		19.10.2020	40.74	75.03	12.02	20.4	ND	21.49	ND	ND	24.08	ND	ND	ND	ND
7		22.10.2020	45.22	77.1	12.88	21.99	ND	20.55	ND	ND	21.86	ND	ND	ND	ND
8		26.10.2020	43.96	73.88	11.77	21.88	ND	23.22	ND	ND	23.66	ND	ND	ND	ND
9		29.10.2020	49.11	77.2	10.42	22.7	ND	20.44	ND	ND	21.74	ND	ND	ND	ND
1	Nov., 2020	02.11.2020	43.48	77.85	10	19	ND	21.4	ND	ND	21	ND	ND	ND	ND
2		05.11.2020	43.83	74.98	12.09	29.21	ND	22	ND	ND	15.74	ND	ND	ND	ND
3		09.11.2020	40.22	78.62	10.99	28.33	ND	22.4	ND	ND	19.09	ND	ND	ND	ND
4		12.11.2020	45.5	74.33	13.08	26.74	ND	21.45	ND	ND	24.79	ND	ND	ND	ND
5		16.11.2020	40.77	74.05	12	26	ND	21.66	ND	ND	19.66	ND	ND	ND	ND
6		19.11.2020	42.55	73.2	11.78	22.85	ND	21.5	ND	ND	24.1	ND	ND	ND	ND
7		23.11.2020	42.88	73.45	9.89	23.55	ND	24.1	ND	ND	24.89	ND	ND	ND	ND
8		26.11.2020	41.07	72.02	9.65	23.04	ND	22.12	ND	ND	20.87	ND	ND	ND	ND
1	Dec., 2020	01.12.2020	42.4	70.8	9.6	18.7	ND	24.37	ND	ND	25.9	ND	ND	ND	ND
2		04.12.2020	43.4	72.9	9.4	18.5	ND	25.3	ND	ND	20.8	ND	ND	ND	ND
3		07.12.2020	40.7	72.04	12.31	19.04	ND	20.87	ND	ND	16.4	ND	ND	ND	ND
4		10.12.2020	44.5	68.3	11.3	24.2	ND	23.1	ND	ND	22.4	ND	ND	ND	ND
5		14.12.2020	42.3	72.2	9.02	22.45	ND	20.55	ND	ND	19.32	ND	ND	ND	ND
6		17.12.2020	40.47	68.1	12.1	24.9	ND	23	ND	ND	21.07	ND	ND	ND	ND
7		21.12.2020	43.02	70.5	12.32	24.5	ND	24.5	ND	ND	20.1	ND	ND	ND	ND
8		24.12.2020	43.09	69.02	11.75	21.96	ND	25.9	ND	ND	22.8	ND	ND	ND	ND
9		28.12.2020	45.42	70.88	9.87	22.85	ND	21.75	ND	ND	22.89	ND	ND	ND	ND

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Environment Status Report

1	Jan., 2021	04.01.2021	41.02	75	16	21	ND	23.2	ND	ND	15.8	ND	ND	ND	ND
2		07.01.2021	41.24	72.02	11	23	ND	24.3	ND	ND	17	ND	ND	ND	ND
3		11.01.2021	39.4	71.3	10.88	21.4	ND	23.5	ND	ND	13.99	ND	ND	ND	ND
4		14.01.2021	39.54	71.42	11.75	22.92	ND	26.1	ND	ND	20.44	ND	ND	ND	ND
5		18.01.2021	39.86	69.45	9.75	22.89	ND	20.78	ND	ND	20.75	ND	ND	ND	ND
6		21.01.2021	43.74	74.22	10.23	22.88	ND	20.02	ND	ND	16.99	ND	ND	ND	ND
7		25.01.2021	40.02	69.99	12.74	24.36	ND	22.44	ND	ND	20.08	ND	ND	ND	ND
8		28.01.2021	44.7	75.47	10.3	23.97	ND	23.1	ND	ND	22.5	ND	ND	ND	ND
1	Feb., 2021	01.02.2021	42.33	71.22	9.54	24.22	ND	23	ND	ND	21	ND	ND	ND	ND
2		04.02.2021	45.89	74.43	10.05	26.3	ND	25.81	ND	ND	21.85	ND	ND	ND	ND
3		08.02.2021	48.32	71.5	9.74	23.6	ND	25.2	ND	ND	22.8	ND	ND	ND	ND
4		11.02.2021	41.66	71.44	11.74	26.05	ND	22.98	ND	ND	21.08	ND	ND	ND	ND
5		15.02.2021	45.01	75.86	10.42	24.05	ND	23.02	ND	ND	20.11	ND	ND	ND	ND
6		18.02.2021	39.54	71.42	11.75	22.92	ND	26.1	ND	ND	20.44	ND	ND	ND	ND
7		22.02.2021	35	68	11	20	ND	20.9	ND	ND	15.2	ND	ND	ND	ND
8		25.02.2021	38	70	16	20	ND	24	ND	ND	15	ND	ND	ND	ND
5	March, 2021	15.03.2021	41.9	72.3	11.7	25	ND	24	ND	ND	13	ND	ND	ND	ND
6		18.03.2021	41.77	72.29	10.87	23.5	ND	23.1	ND	ND	19.4	ND	ND	ND	ND
Minimum			**35**	**68**	**8.99**	**18.5**	**0**	**20.01**	**0**	**0**	**13**	**0**	**0**	**0**	**0**
Maximum			**49.11**	**79.8**	**16**	**29.21**	**0**	**26.1**	**0**	**0**	**25.9**	**0**	**0**	**0**	**0**
Mean			**42.39**	**73.20**	**11.18**	**23.14**	**#DIV/0!**	**20.01**	**0**	**0**	**13**	**0**	**0**	**0**	**0**
Standard Deviation			**2.7**	**3.0**	**1.6**	**2.4**	**0.0**	**1.7**	**0.0**	**0.0**	**3.1**	**0.0**	**0.0**	**0.0**	**0.0**
98 Percentile			**48.4306**	**78.7852**	**16**	**28.4532**	**#NUM!**	**1.73661**	**0**	**0**	**3.09930**	**0**	**0**	**0**	**0**

(NOTE: - Above tabulated data taken from monthly environmental monitoring report generated by outsource agency. M/s Envirochem Testing Lab & Research Center, Panipat, vide recognition No. PPCB/AIR LAB/14887 and also Approved by NABL (Reg. No- TC 6015). The monthly environmental monitoring reports are available with us).

(Oct,2020 to Oct,2020)

GVK Power (Goindwal Sahib) Ltd.

(Oct 2020 to Oct 2020)

ENVIROCHEM TESTING LAB
& Research Centre

(GOVT. APPROVED LAB)

(An ISO 9001 : 2015, ISO 14001 : 2015, ISO 18001 : 2007 Certified Lab)

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TEST REPORT

Report No	ETL/ PNP/2579	Report Date	06.11.2020	Doc No.	ETL/QF/7.8/01
Issue to: M/s GVK Power (Goindwal Sahib) Ltd. Kapurthala Road, Goindwal Sahib, Distt. Tarn Taran - 143422		Party's Ref No: Nil Work Order No: 2579 Period of Testing: 31.10.2020 – 06.11.2020			

SAMPLE PARTICULARS

1	Name of the Unit	:	M/s GVK Power (Goindwal Sahib) Ltd.
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Boiler Stack (Unit – I) - 865 TPH
4	Sampling Point	:	From the port hole
5	Date & Time of Sampling	:	29.10.2020
6.	Purpose of Analysis	:	Self Monitoring
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	33
2.	Stack Temperature (°C)	:	120
3.	Velocity (m/sec)	:	21.02
4.	Source of Emission & capacity	:	Boiler Stack (Unit – I) - 865 TPH
5.	Diameter of Stack	:	4.8 m
6.	Height of Stack from Ground Level	:	275 m
7.	Type of Fuel Used	:	Coal
8.	Duration of sampling	:	36 min
9.	Emission Control	:	ESPs
10.	General sensory observation	:	Normal
11.	Recovery of material	:	Nil
12.	Volumetric flow rate VFR (NM^3/Hr)	:	997735

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits (CPCB)	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	43.8	50	IS 11255 (Part 1) 1985
2.	Sulphur Dioxide (SO_2), mg/NM^3	900.2	600	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_2), mg/NM^3	416.8	450	IS 11255 (Part 7) 2005
4.	Mercury (Hg), mg/NM^3*	ND (BDL - 0.005)	0.03	ETL/SOP/S - 010

Remarks: 12% of CO_2 correction is the reference value for particulate matter. Sr. No. 2 & 3 Corrected at 6% O_2. ND – Not Detectable (BDL – Below Detectable Limit). *Parameter not covered under NABL scope. At the time of sampling only Unit- I is in operational.

*********End Report*********

Manager Lab./ Sr. Chemist

Authority Signatory
QM / TM

Date 6-11-2020

Environ Chem Testing Lab & Research Centre * PANIPAT *

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(Nov,2020 to Nov,2020)

(Only Ambient Air Quality Monitoring was carried out during the month, other monitoring as stack was not performed due to plant shutdown and water monitoring is scheduled on quarterly bases)

GVK Power (Goindwal Sahib) Ltd.

(Dec,2020 to Dec,2020)

GVK Power (Goindwal Sahib) Ltd.

(Dec,2020 to Dec,2020)

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TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2020-215	Report Date	25.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB – 215 A & B
Period of Testing: 21.12.2020 – 25.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	**WASTE WATER**
2	Point of Sample Collection	:	STP Inlet and Outlet
3	Date of sample collection/ received	:	19.12.2020
4	Purpose of analysis	:	Consent
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Inlet	Outlet	General Std. Limits For Discharge			Protocol used
				Inland Surface Water	Sewerage Water	Irrigation	
1.	Appearance	Greyish	Colourless	--	-	-	IS 3025 (P-4) 1983
2.	Odour	Foul	Odourless	--	-	-	IS 3025 (P-5) 1983
3.	pH	7.74	7.12	5.5-9.0	5.5-9.0	5.5-9.0	IS 3025 (P-11) 1983
4.	COD, mg/L	316.83	19.8	250	-	-	IS 3025 (P-58) 2006
5.	BOD at 27°C for 3 Days, mg/L	104.6	6.11	30	350	100	IS 3025 (P-44)1993
6.	Total Suspended Solids, mg/L	58	< 2.0	100	600	200	IS 3025 (P-17) 1984
7.	Oil & Grease, mg/L	< 2.0	< 2.0	10	20	10	IS 3025 (P-39) 1991

*********End Report*********

Manager Lab./ Sr. Chemist

(Dr. Rajender Kumar)
MD

Envirochem Testing Lab & Research Centre
Authorised Sign
Date 1
PANIPAT
25-12-20

NOT FOR MORE ... PURPOSE

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TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2020-216	Report Date	23.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No: PPCB – 216
Period of Testing: 21.12.2020 – 23.12.2020

SAMPLE PARTICULARS

1	Name of the Unit	:	M/s GVK Power (Goindwal Sahib) Ltd.
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	DG stack 750 KVA - I
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	19.12.2020
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	20
2.	Stack Temperature (°C)	:	168
3.	Velocity (m/sec)	:	12.30
4.	Source of Emission & capacity	:	DG stack 750 KVA - I
5.	Diameter of Stack	:	20.32 cm
6.	Height of Stack from Ground Level	:	12 m
7.	Type of Fuel Used	:	HSD – 60 Ltr/ Day
8.	Duration of sampling	:	50 min
9.	Emission Control (if any)	:	Nil
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13..	Volumetric flow rate VFR (NM^3/Hr)	:	932

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits CPCB	Protocol Used
1.	Particulate Matter (PM), (gm/Kwh)	0.12	0.2	IS 11255 (Part 1) 1985
2.	Sulphur Dioxide (SO_2), (gm/Kwh)	< 0.05	-	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_2), (gm/Kwh)	1.02	4.0	IS 11255 (Part 7) 2005
4.	Carbon Monoxide (CO), (gm/Kwh)	0.37	3.5	ETL-SOP - S 06
5.	Hydrocarbons (HC), (gm/Kwh)	0.12	1.30	HC Meter

Remarks: Analysed Parameters meet the Standards Limits.

*********End Report*********

Manager Lab./ Sr. Chemist

Authorised Sign.
(Dr.) Rajender Kumar
Date 23-12-20

REPORT IS VALID ONLY FOR CONSENT PURPOSES NOT FOR MONITORING PURPOSE

NOTE
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TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2020-217	Report Date	23.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil

Work Order No: PPCB – 217

Period of Testing: 21.12.2020 – 23.12.2020

SAMPLE PARTICULARS

1	Name of the Unit	:	M/s GVK Power (Goindwal Sahib) Ltd.
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	DG stack 750 KVA - II
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	19.12.2020
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	20
2.	Stack Temperature (°C)	:	174
3.	Velocity (m/sec)	:	13.1
4.	Source of Emission & capacity	:	DG stack 750 KVA - II
5.	Diameter of Stack	:	20.32 cm
6.	Height of Stack from Ground Level	:	12 m
7.	Type of Fuel Used	:	HSD – 60 Ltr/ Day
8.	Duration of sampling	:	50 min
9.	Emission Control (if any)	:	Nil
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13..	Volumetric flow rate VFR (NM^3/Hr)	:	980

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits CPCB	Protocol Used
1.	Particulate Matter (PM), (gm/Kwh)	0.11	0.2	IS 11255 (Part 1) 1985
2.	Sulphur Dioxide (SO_2), (gm/Kwh)	< 0.05	-	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_2), (gm/Kwh)	1.16	4.0	IS 11255 (Part 7) 2005
4.	Carbon Monoxide (CO), (gm/Kwh)	0.33	3.5	ETL-SOP - S 06
5.	Hydrocarbons (HC), (gm/Kwh)	0.16	1.30	HC Meter

Remarks: Analysed Parameters meet the Standards Limits.

*********End Report*********

Manager Lab./ Sr. Chemist

(Dr. Rajender Kumar)
MD

Authorised Sign
Date 23-12-20

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TC-6015

TEST REPORT

Report No	ETL/ PNP/2701	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No: 2701
Period of Testing: 21.12.2020 – 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	SOIL
2	Point of Sample Collection	:	Near Hazardous Waste Storage Site
3	Date of sample collection/ received	:	19.12.2020
4	Purpose of analysis	:	Self Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	1 Kg
7	Method of Sampling	:	As per standard

TEST RESULTS

Sr. No.	Parameters	Results	Protocol used
1.	pH (Sludge/water 1:2)	7.30	ETL/SOP/SW01
2.	Moisture (%)	19.8	USEPA 6010 B Dec. 1996
3	Organic Matter (%age)	2.04	ETL/SOP/SW01
4	Specific Conductivity (1:2 Ratio) dS/cm	0.24	USEPA 6010 B Dec. 1996
5	Nickel (as Ni), Kg/HA	0.03	USEPA 6010 B Dec. 1996
6	Potassium (as K), Kg/HA	101.5	USEPA 6010 B Dec. 1996
7	Available Phosphorous as P, Kg/HA	10.5	USEPA 6010 B Dec. 1996
8	Copper (as Cu), Kg/HA	0.24	USEPA 6010 B Dec. 1996
9	Nitrogen as N, Kg/HA	228	ETL/SOP/SW/25
10	Zinc (as Zn), Kg/HA	0.2	USEPA 6010 B Dec. 1996
11	Cadmium, Kg/HA	ND	USEPA 6010 B Dec. 1996
12	Total Chromium, Kg/HA	ND	USEPA 6010 B Dec. 1996
13	Lead (as Pb), Kg/HA	0.27	USEPA 6010 B Dec. 1996
14	Mercury Kg/HA	ND(DL- 1 Kg/HA)	APHA Method
15	Aromatic Hydro Carbon Kg/HA	ND (DL-1 Kg/HA)	By GC

Remarks: Parameters at Sr. No. 1, 2 & 4 on received basis, others are on dry basis

Manager Lab./ Sr. Chemist

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Authorized Signatory
QM / TM

NOTE
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TEST REPORT

Report No	ETL/ PNP/2700	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No: 2700
Date of Measurement: 18.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	AMBIENT NOISE - DAY & NIGHT TIME
2	Date of sample measurement	:	18.12.2020
3	Purpose of analysis	:	Self Monitoring purpose
4	Sample collected/ supplied by	:	By Lab Representative

TEST RESULTS

Sr. No.	Point of Measurement	Day Time Noise Level (dB) 6:00 AM -10:00PM)			Night Time Noise Level (dB) (10:00 PM – 6.00AM)			Limit (dB)	Limit (dB)
		Avg.	Max	Min	Avg.	Max.	Min	Day Time	Night Time
1	Near Service building	68.0	69.2	66.8	61.0	63.1	58.9	85	85
2	CHP Area	71.0	71.8	70.2	65.0	67.1	62.9	85	85
3	AHP Area	67.0	67.8	66.2	61.0	62.9	59.1	85	85
4	Nar Plant Site Office	63.0	63.8	62.2	57.0	58.1	55.9	85	85
5	Near Boiler Area	72.0	74.1	69.9	68.0	68.8	67.2	85	85
6	Residential Colony	50.0	51.2	48.8	42.0	43.3	40.7	55	45
7	Near Admin Building	65.0	65.6	64.4	59.0	59.3	58.7	85	85
8	Near DM Plant	65.0	65.7	64.5	60.0	61.3	58.7	85	85
9.	Near Railway over bridge	58.0	58.6	57.4	55.0	55.3	54.7	85	85

Remarks: Limits on Sr no. 1-5 & 7-9 as per **Factory Act-1948** and On Sr no 6 as per **EPA-1986.**

Manager Lab./ Sr. Chemist

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Authority Signatory
QM / TM

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TC-6015

TEST REPORT

Report No	ETL/ PNP/2699	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No: 2699
Period of Testing: 21.12.2020 - 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	**ASH POND EFFLUENT**
2	Point of Sample Collection	:	Stilling Pond (Ash Pond)
3	Date of sample collection/ received	:	19.12.2020
4	Purpose of analysis	:	Self Monitoring
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol used
1.	pH	7.20	6.5 – 8.5	IS 3025 (P-11) 1983
2.	Total Suspended Solids, mg/L	16	100	IS 3025 (P-17) 1984
3.	Aluminium (as Al), mg/L	ND (DL-0.03)	Not Specified	IS 3025 (P-55) : 2003
4.	Oil & Grease, mg/L	2.4	20	IS 3025(P-39) 1991
5.	Arsenic (as As), mg/L	ND (DL-0.01)	Not Specified	IS 3025 (P-37) : 1988
6.	Copper (as Cu), mg/L	0.18	Not Specified	IS 3025 (P-42) : 1992
7.	Lead (as Pb), mg/L	ND (DL-0.05)	Not Specified	IS 3025 (P-47) : 1994
8.	Nickel as Ni, mg/L	ND (DL-0.01)	Not Specified	IS 3025 (P-54) : 2003
9.	Total Chromium as Cr, mg/L	ND (DL-0.01)	Not Specified	IS 3025 (P-52) : 2003
10	Cadmium (as Cd), mg/L	ND (DL-0.003)	Not Specified	IS 3025 (P-41) : 1998
11	Mercury as Hg, mg/L	ND (DL-0.001)	Not Specified	IS 3025 (P-48)
12	Zinc as Zn, mg/L	0.25	Not Specified	IS 3025 (P-49) : 1994

Remarks: Standard Limits as per CPCB guidelines for Thermal Power Plants.

Manager Lab./ Sr. Chemist

Authority Signatory
Authorised QM, TM
Date 26

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TEST REPORT

Report No	ETL/ PNP/2692	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No:2692
Period of Testing: 21.12.2020 – 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	**GROUND WATER**
2	Point of Sample Collection	:	Peziometer (PLL Colony)
3	Date of sample collection/ received	:	18.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity	:	15 litre + 250 ml for Microbiology
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.67	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	468	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	45.8	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	13.5	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	28.7	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

FOR PURPOSES &

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21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	11.8	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	297	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	235	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test Method**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine, µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 – Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D. : Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

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Date.....QM / TM

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TEST REPORT

Report No	ETL/ PNP/2693	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No:2693
Period of Testing:21.12.2020 – 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	GROUND WATER
2	Point of Sample Collection	:	Peziometer (Near Fire Station)
3	Date of sample collection/ received	:	18.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity	:	15 litre + 250 ml for Microbiology
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.87	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	475	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	58	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	16.7	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	27.2	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

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21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	8.9	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	292	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	263	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test MEthod**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine. µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 – Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D.: Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

Authority Signatory
QM / TM

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TEST REPORT

Report No	ETL/ PNP/2694	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No:2694
Period of Testing:21.12.2020 - 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	**GROUND WATER**
2	Point of Sample Collection	:	Peziometer (Site Office)
3	Date of sample collection/ received	:	18.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity	:	15 litre + 250 ml for Microbiology
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.62	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	474	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	42.7	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	25.7	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	20.5	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

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21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	23.7	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	254	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	236	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test Method**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine, µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 – Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D.: Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

Authority Signatory
QM / AM

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TEST REPORT

Report No	ETL/ PNP/2695	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No:2695
Period of Testing:21.12.2020 – 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	GROUND WATER
2	Point of Sample Collection	:	Peziometer North side of ash pond (near security post)
3	Date of sample collection/ received	:	18.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity	:	15 litre + 250 ml for Microbiology
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.69	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	457	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	45	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	25.3	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	28.8	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

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21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	12.8	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	186	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	242	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test Method**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine, µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 -- Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D : Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

Authority Signatory
QM / TM

Authorised Sign.
Date 06-2-20
Envirochem Testing Lab & Research Centre PANIPAT

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TEST REPORT

Report No	ETL/ PNP/2696	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil

Work Order No: 2696

Period of Testing: 21.12.2020 -- 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	**GROUND WATER**
2	Point of Sample Collection	:	Handpump (Village- Mundi)
3	Date of sample collection/ received	:	19.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity	:	15 litre + 250 ml for Microbiology
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.12	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	448	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	42.1	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	35.4	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	25.2	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

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21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	46	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	215	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	234	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{+6}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test Method**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine, µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 – Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D.: Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

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TEST REPORT

Report No	ETL/ PNP/2697	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: Nil
Work Order No:2697
Period of Testing:21.12.2020 – 26.12.2020

SAMPLE PARTICULARS

1	Type of sample	:	**GROUND WATER**
2	Point of Sample Collection	:	Handpump (Village- Goindwal Sahib)
3	Date of sample collection/ received	:	19.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity		15 litre + 250 ml for Microbiology
7	Method of Sampling		IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.48	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	469	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	47.1	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	38.6	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	27.4	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

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21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	11.7	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	127	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	259	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test Method**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine, µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 – Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D.. Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

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Date
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TEST REPORT

Report No	ETL/ PNP/2698	Report Date	26.12.2020	Doc No.	ETL/QF/7.8/01
Issue to: **M/s GVK Power (Goindwal Sahib) Ltd.** Kapurthala Road, Goindwal Sahib, Distt. Tarn Taran - 143422		**Party's Ref No:** Nil **Work Order No:2698** **Period of Testing:21.12.2020 – 26.12.2020**			

SAMPLE PARTICULARS

1	Type of sample	:	**GROUND WATER**
2	Point of Sample Collection	:	Handpump (Village-Vairowal)
3	Date of sample collection/ received	:	19.12.2020
4	Purpose of analysis	:	Monitoring purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Sample Quantity		15 litre + 250 ml for Microbiology
7	Method of Sampling		IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
A.	**Organoleptic and Physical Parameter**				
1.	Colour, Hazen units	ND (DL-5)	5	15	IS 3025 (P-4) : 1983
2.	Odour	Unobjectionable	Agreeable	Agreeable	IS 3025 (P-5) : 1983
3.	Turbidity, NTU	ND (DL-1)	1	5	IS 3025 (P-10) : 1984
4.	pH	7.58	6.5 – 8.5	No Relaxation	IS 3025 (P-11) : 1996
5.	Total Dissolved Solids, mg/l	472	500	2000	IS 3025 (P-16) : 2002
6.	Taste	Agreeable	Agreeable	Agreeable	IS 3025 (P-7&8) : 2012
B.	**General Parameters Concerning Substances Undesirable in Excessive Amount**				
7	Aluminium (as Al), mg/L	ND(DL-0.03)	0.03	0.2	IS 3025(P-55)
8	Ammonical Nitrogen (as NH_3-N), mg/L	ND (DL-0.05)	0.5	No relaxation	IS 3025 (P-34) : 1988
9	Anionic Detergents (as MBAS),mg/L	ND(DL-0.01)	0.02	1.0	IS 13428
10	Barium (as Ba), mg/L	ND (DL-0.05)	0.7	No Relaxation	IS 13428
11	Boron (as B), mg/l	ND (DL-0.1)	0.5	1.0	IS 3025 (P-57) : 2005
12	Calcium Hardness (as Ca), mg/l	30.5	75	200	IS 3025 (P-40) :1998
13	Chloramines (as Cl_2), mg/L	ND(DL-0.01)	4.0	No Relaxation	IS 3025(P-26)
14	Chloride (as Cl) mg/l	40.2	250	1000	IS 3025 (P-32) : 1993
15	Copper (as Cu), mg/l	ND (DL-0.01)	0.05	1.50	IS 3025 (P-42) : 1992
16	Fluoride (as F), mg/l	ND (DL-0.1)	1.0	1.5	APHA Method
17	Residual Free Chlorine, mg/l	ND (DL-0.1)	0.2	1	IS 3025 (P-26) : 1986
18	Iron (as Fe), mg/l	ND (DL-0.05)	0.3	No Relaxation.	IS 3025 (P-53) : 2003
19	Magnesium Hardness (as Mg), mg/l	23.4	30	100	IS 3025 (P-46) :1994
20	Manganese (as Mn), mg/l	ND (DL-0.01)	0.1	0.3	APHA Method

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TEST REPORT

21	Mineral Oil, mg/L	ND (DL-0.1)	0.5	No Relaxation	IS 3025 (P-39)
22	Nitrate (as NO_3), mg/l	ND (DL-0.1)	45	No relaxation	IS 3025 (P-34) : 1988
23	Phenolic Compounds (as C_6H_5OH), mg/l	ND (DL-0.001)	0.001	0.002	IS 3025 (P-43) : 1992
24	Selenium (as Se), mg/L	ND (DL-0.01)	0.01	No Relaxation	IS 3025 (P-56)
25	Silver (as Ag), mg/L	ND (DL-0.01)	0.1	No Relaxation	IS 13428
26	Sulphate (as SO_4), mg/l	30.4	200	400	IS 3025 (P-24) :1986
27	Sulphides (as H_2S), mg/L	ND (DL-0.05)	0.05	No Relaxation	IS 3025(P-29)
28	Total Alkalinity (as $CaCO_3$), mg/l	127	200	600	IS 3025 (P-23) : 1998
29	Total Hardness (as $CaCO_3$), mg/l	167	200	600	IS 3025 (P-21) : 2009
30	Zinc (as Zn), mg/l	ND (DL-0.01)	5.0	15.0	IS 3025 (P-49) : 1994
C.	**Parameter Concerning Toxic Substances**				
31	Cadmium (as Cd), mg/l	ND (DL-0.003)	0.003	No relaxation	IS 3025 (P-41) : 1998
32	Lead (as Pb), mg/l	ND (DL-0.01)	0.01	No relaxation	IS 3025 (P-47) : 1994
33	Cyanide (as CN), mg/l,	ND (DL-0.02)	Max 0.05	No relaxation	IS 3025 (Part 27)
34	Mercury (as Hg), mg/L	ND (DL-0.001)	0.001	No Relaxation	IS 3025 (P-48)
35	Molybdenum (Mo), mg/L	ND (DL-0.01)	0.07	No Relaxation	IS 3025 (P-2)
36	Nickel (as Ni), mg/l	ND (DL-0.01)	0.02	No relaxation	IS 3025 (P-54) : 2003
37	Polychlorinated Biphenyls, mg/L	ND (DL-0.0001)	0.0005	No Relaxation	APHA method
38	Polynuclear Aromatic Hydrocarbons (as PAH), mg/L	ND (DL-0.0001)	0.0001	No Relaxation	APHA method
39	Total Chromium (as Cr), mg/l	ND (DL-0.05)	0.05	No relaxation	IS 3025 (P-52) : 2003
40	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL-0.01)	-	-	IS 3025 (P-52) : 2003
41	Bromoform, mg/L	ND (DL-0.01)	0.1	--	APHA Method
42	Dibromochloromethane, mg/L	ND (DL-0.01)	0.1	--	APHA Method
43	Bromochloromethane, mg/L	ND (DL-0.01)	0.06	--	APHA Method
44	Chloroform, mg/L	ND (DL-0.05)	0.2	--	APHA Method
45	Arsenic mg/L	ND(DL-0.01)	0.01	0.01	IS 3025 (P-37)
D.	**Pesticide Residue Limits and Test Method**				
46	Alachor, µg/L	ND (DL-0.01)	20	--	US EPA Method
47	Atrazine, µg/L	ND (DL-0.01)	2	--	US EPA Method
48	Aldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
49	Dieldrin, µg/L	ND (DL-0.01)	0.03	--	US EPA Method
50	Delta HCH, µg/L	ND (DL-0.01)	0.04	--	US EPA Method
51	Butachlor, µg/L	ND (DL-0.01)	125	--	US EPA Method
52	Chlorpyrifos, µg/L	ND (DL-0.01)	30	--	US EPA Method
53	2, 4 – Dichlorophenoxy Acetic Acid, µg/L	ND (DL-0.01)	30	--	US EPA Method
54	2, 4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
55	4,4 DDT, µg/L	ND (DL-0.01)	1.0	--	US EPA Method

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TEST REPORT

56	2,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
57	4,4 DDD, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
58	2,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
59	4,4 DDE, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
60	Endosulfan, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
61	Endosulfan – I, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
62	Endosulfan – II, µg/L	ND (DL-0.01)	0.4	--	US EPA Method
63	Ethion, µg/L	ND (DL-0.01)	3.0	--	US EPA Method
64	Isoproturon, µg/L	ND (DL-0.01)	9.0	--	US EPA Method
65	Malathion, µg/L	ND (DL-0.01)	190	--	US EPA Method
66	Methyl Parathion, µg/L	ND (DL-0.01)	0.3	--	US EPA Method
67	Monocrotophos, µg/L	ND (DL-0.01)	1.0	--	US EPA Method
68	Phorate, µg/L	ND (DL-0.01)	2.0	--	US EPA Method
69	Gamma HCH (Lindane), µg/L	ND (DL-0.01)	2.0	--	US EPA Method

Sr. No.	Parameters	Results	Drinking Water Specifications (As per IS 10500 : 2012) Acceptable Limit	Permissible limit	Protocol Used
E.	**Bacteriological Quality of Drinking Water**				
1.	Coliform Organisms, MPN/100 mL	ND(DL-1)	ND		IS 1622: 1981
2.	E. Coli (per 100 mL)	Absent	Absent		IS 1622: 1981

Remarks: 1. Limit: N.D. is < 1 MPN / 100 ml 2. N.D.: Not Detectable 3. DL- Detection Limit

Manager Lab./ Sr. Chemist

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(Jan,2021 to Jan,2021)

GVK Power (Goindwal Sahib) Ltd.

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TEST REPORT

Report No	ETL/ PPCB/ 2020-223 A	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB – 223 A
Period of Testing: 25.01.2021 – 29.01.2021

SAMPLE PARTICULARS

1	Type of sample	:	WASTE WATER
2	Point of Sample Collection	:	STP Outlet(Colony)
3	Date of sample collection/ received	:	23.01.2021
4	Purpose of analysis	:	Consent
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Outlet	General Std. Limits For Discharge			Protocol used
			Inland Surface Water	Sewerage Water	Irrigation	
1.	Appearance	Colourless	--	-	-	IS 3025 (P-4) 1983
2.	Odour	Odourless	--	-	-	IS 3025 (P-5) 1983
3.	pH	7.40	5.5-9.0	5.5-9.0	5.5-9.0	IS 3025 (P-11) 1983
4.	COD, mg/L	32	250	-	-	IS 3025 (P-58) 2006
5.	BOD at 27°C for 3 Days, mg/L	8.77	30	350	100	IS 3025 (P-44)1993
6.	Total Suspended Solids, mg/L	< 2.0	100	600	200	IS 3025 (P-17) 1984
7.	Oil & Grease, mg/L	< 2.0	10	20	10	IS 3025 (P-39) 1991

*********End Report*********

Manager Lab./ Sr. Chemist

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Date: 29/1/21

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TEST REPORT

Report No	ETL/ PPCB/ 2020-223 B	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement

Work Order No: PPCB – 223 B

Period of Testing: 25.01.2021 – 29.01.2021

SAMPLE PARTICULARS

1	Type of sample	:	WASTE WATER
2	Point of Sample Collection	:	STP Outlet (Plant)
3	Date of sample collection/ received	:	23.01.2021
4	Purpose of analysis	:	Consent
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each
7	Method of Sampling	:	IS 3025 (P - 1) 1987

TEST RESULTS

Sr. No.	Parameters	Outlet	General Std. Limits For Discharge			Protocol used
			Inland Surface Water	Sewerage Water	Irrigation	
1.	Appearance	Colourless	--	-	-	IS 3025 (P-4) 1983
2.	Odour	Odourless	--	-	-	IS 3025 (P-5) 1983
3.	pH	7.34	5.5-9.0	5.5-9.0	5.5-9.0	IS 3025 (P-11) 1983
4.	COD, mg/L	24	250	-	-	IS 3025 (P-58) 2006
5.	BOD at 27°C for 3 Days, mg/L	8.43	30	350	100	IS 3025 (P-44)1993
6.	Total Suspended Solids, mg/L	< 2.0	100	600	200	IS 3025 (P-17) 1984
7.	Oil & Crease, mg/L	< 2.0	10	20	10	IS 3025 (P-39) 1991

**********End Report**********

Manager Lab./ Sr. Chemist

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Authority Signatory
QM & TM
Date 29/1/21

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TEST REPORT

Report No	ETL/ PPCB/2021 - 222	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01
Issue to: **M/s GVK Power (Goindwal Sahib) Ltd.** Kapurthala Road, Goindwal Sahib, Distt. Tarn Taran - 143422		**Party's Ref No:** Nil **Work Order No:** PPCB - 222 **Period of Testing:**25.01.2021 – 29.01.2021			

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Boiler Stack (Unit – I) - 865 TPH
4	Sampling Point	:	From the port hole
5	Date & Time of Sampling	:	23.01.2021
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	15
2.	Stack Temperature (°C)	:	128
3.	Velocity (m/sec)	:	20.99
4.	Source of Emission & capacity	:	Boiler Stack (Unit – I) - 865 TPH
5.	Diameter of Stack	:	4.8 m
6.	Height of Stack from Ground Level	:	275 m
7.	Type of Fuel Used	:	Coal
8.	Duration of sampling	:	36 min
9.	Emission Control	:	ESPs
10.	General sensory observation	:	Normal
11.	Recovery of material	:	Nil
12.	Volumetric flow rate VFR (NM^3/Hr)	:	976435

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits (CPCB)	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	35	50	IS 11255 (Part-1) 1985
2.	Sulphur Dioxide (SO_2), mg/NM^3	812	600	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_2), mg/NM^3	340	450	IS 11255 (Part 7) 2005
4.	Mercury (Hg), mg/NM^3*	ND (BDL - 0.005)	0.03	ETL/SOP/S - 010

Remarks: 12% of CO_2 correction is the reference value for particulate matter. Sr. No. 2 & 3 Corrected at 6% O_2. ND – Not Detectable (BDL – Below Detectable Limit). *Parameter not covered under NABL scope. At the time of sampling only Unit- I is in operational.

*********End Report*********

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TEST REPORT

Report No	ETL/ PPCB/ 2020-223 A	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB – 223 A
Period of Testing: 25.01.2021 – 29.01.2021

SAMPLE PARTICULARS

1	Type of sample	:	**WASTE WATER**
2	Point of Sample Collection	:	STP Inlet
3	Date of sample collection/ received	:	23.01.2021
4	Purpose of analysis	:	Consent
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Inlet	Protocol used
1.	Appearance	Greyish	IS 3025 (P-4) 1983
2.	Odour	Foul	IS 3025 (P-5) 1983
3.	pH	7.01	IS 3025 (P-11) 1983
4.	COD, mg/l.	410	IS 3025 (P-58) 2006
5.	BOD at 27°C for 3 Days, mg/L	106.7	IS 3025 (P-44)1993
6.	Total Suspended Solids, mg/l.	110	IS 3025 (P-17) 1984
7.	Oil & Grease, mg/L	< 2.0	IS 3025 (P-39) 1991

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Manager Lab./ Sr. Chemist

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TEST REPORT

Report No	ETL/ PPCB/ 2020-223 B	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Issue to:
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Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB – 223 B
Period of Testing: 25.01.2021 – 29.01.2021

SAMPLE PARTICULARS

1	Type of sample	:	**WASTE WATER**
2	Point of Sample Collection	:	STP Outlet
3	Date of sample collection/ received	:	23.01.2021
4	Purpose of analysis	:	Consent
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each
7	Method of Sampling	:	IS 3025 (P -- 1) 1987

TEST RESULTS

Sr. No.	Parameters	Outlet	General Std. Limits For Discharge			Protocol used
			Inland Surface Water	Sewerage Water	Irrigation	
1.	Appearance	Colourless	--	-	-	IS 3025 (P-4) 1983
2.	Odour	Odourless	--	-	-	IS 3025 (P-5) 1983
3.	pH	7.34	5.5-9.0	5.5-9.0	5.5-9.0	IS 3025 (P-11) 1983
4.	COD, mg/L	24	250	-	-	IS 3025 (P-58) 2006
5.	BOD at 27°C for 3 Days, mg/L	8.43	30	350	100	IS 3025 (P-44)1993
6.	Total Suspended Solids, mg/L	< 2.0	100	600	200	IS 3025 (P-17) 1984
7.	Oil & Grease, mg/L	< 2.0	10	20	10	IS 3025 (P-39) 1991

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TEST REPORT

Report No	ETL/ PPCB/ 2020-224 A	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement

Work Order No: PPCB – 224 A

Period of Testing: 25.01.2021 – 29.01.2021

SAMPLE PARTICULARS

1	Type of sample	:	**EFFLUENT WATER**
2	Point of Sample Collection	:	ETP Inlet
3	Date of sample collection/ received	:	23.01.2021
4	Purpose of analysis	:	Consent purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each + 20 Ltr. Outlet for Bio – assay
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Inlet	Protocol used
1.	Appearance *	Light Turbid	IS 3025 (P-4) 1983
2.	Odour *	Mild	IS 3025 (P-5) 1983
3.	pH	7.99	IS 3025 (P-11) 1983
4.	Temperature ^{0}C	23	IS 3025 (P-9) : 1984
5.	COD, mg/L	456	IS 3025 (P-58) 2006
6.	BOD at 27°C for 3 Days, mg/L	103.4	IS 3025 (P-44)1993
7.	Total Suspended Solids, mg/L	54	IS 3025 (P-17) 1984
8.	Total Dissolved Solids, mg/L	1040	IS 3025 (P-16) 1984
9.	Oil & Grease, mg/L	2.6	IS 3025 (P-39) 1991
10.	Free Ammonia, mg/L	ND (DL-0.1)	IS 3025 (Part-34): 1988
11.	Ammonium as NH_4 – N, mg/L	19.7	IS 3025 (Part-34):.1988
12.	Arsenic as As, mg/L	ND (DL- 0.01)	IS 3025 (P-37) : 1988
13.	Copper as Cu, mg/L	0.80	IS 3025 (P-42) : 1992
14.	Nickel as Ni, mg/L	0.29	IS 3025 (P-54) : 2003
15.	Total Kjeldhal Nitrogen as N, mg/L	36.7	IS 3025 (P-34) : 1988
16.	Total Chromium as Cr, mg/L	ND (DL- 0.05)	IS 3025 (P-52) : 2003
17.	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL- 0.01)	IS 3025 (P-52) : 2003

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TEST REPORT

Report No	ETL/ PPCB/ 2020-224 A	Report Date	29.01.2021	Doc No.	ETL/OF/7.8/01

Sr. No.	Parameters	Inlet	Protocol used
18.	Phosphate (as P), mg/L	299	IS 3025 (P-31) : 1988
19.	Cadmium as Cd mg/L	ND (DL- 0.003)	IS 3025 (P-41) : 1998
20.	Zinc as Zn, mg/L	0.81	IS 3025 (P-49) : 1994
21.	Sulphide as SO_2 mg/L	1.98	APHA Method
22.	Fluoride (as F), mg/L	ND (DL- 0.1)	APHA Method
23.	Phenolic compounds (as C_6H_5OH), mg/L	ND (DL- 0.001)	IS 3025 (P-43) : 1992
24.	Manganese (as Mn), mg/L	ND (DL- 0.01)	APHA Method
25.	Nitrate Nitrogen as N, mg/L	0.93	IS 3025 (P-34) : 1988
26.	Residual Free Chlorine, mg/l	ND (DL- 0.1)	IS 3025 (P-26) : 1986
27.	Cyanide as CN, mg/L	ND (DL- 0.02)	APHA Method
28.	Mercury as Hg , mg/L	ND (DL- 0.001)	IS 3025 (P-48)
29.	Bioassay (96 hrs), %	-	IS 6582 : 1971

*Parameter not covered under NABL scope ND- Not Detectable, DL- Detection Limit

*********End Report*********

Manager Lab./ Sr. Chemist

(Authority Signatory)
QM / TM

Authority Signatory Date 1-2-2021 PANIPAT

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TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2020-224 B	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB – 224 B
Period of Testing: 25.01.2021 – 29.01.2021

SAMPLE PARTICULARS

1	Type of sample	:	**EFFLUENT WATER**
2	Point of Sample Collection	:	ETP Outlet
3	Date of sample collection/ received	:	23.01.2021
4	Purpose of analysis	:	Consent purpose
5	Sample collected/ supplied by	:	By Lab Representative
6	Quantity of Sample	:	5 Litre each + 20 Ltr. Outlet for Bio – assay
7	Method of Sampling	:	IS 3025 (P – 1) 1987

TEST RESULTS

Sr. No.	Parameters	Outlet	General Std. Limits For Discharge (Inland Surface Water)	Protocol used
1.	Appearance *	Colourless	-	IS 3025 (P-4) 1983
2.	Odour *	Odourless	-	IS 3025 (P-5) 1983
3.	pH	7.14	5.5-9.0	IS 3025 (P-11) 1983
4.	Temperature °C	23	--	IS 3025 (P-9) : 1984
5.	COD, mg/L	42	250	IS 3025 (P-58) 2006
6.	BOD at 27°C for 3 Days, mg/L	10.02	30	IS 3025 (P-44)1993
7.	Total Suspended Solids, mg/L	< 2.0	100	IS 3025 (P-17) 1984
8.	Total Dissolved Solids, mg/L	702	2100	IS 3025 (P-16) 1984
9.	Oil & Grease, mg/L	ND (DL-2.0)	10	IS 3025 (P-39) 1991
10.	Free Ammonia, mg/L	ND	5.0	IS 3025 (Part-34): 1988
11.	Ammonium as NH_4 – N, mg/L	2.44	10	IS 3025 (Part-34): 1988
12.	Arsenic as As, mg/L	ND (DL- 0.01)	0.2	IS 3025 (P-37) : 1988
13.	Copper as Cu, mg/L	0.21	3.0	IS 3025 (P-42) : 1992
14.	Nickel as Ni, mg/L	ND (DL- 0.01)	3.0	IS 3025 (P-54) : 2003
15.	Total Kjeldhal Nitrogen as N, mg/L	4.9	10	IS 3025 (P-34) : 1988
16.	Total Chromium as Cr, mg/L	ND (DL- 0.01)	2.0	IS 3025 (P-52) : 2003
17.	Hexavalent Chromium (as Cr^{6+}), mg/l	ND (DL- 0.01)	0.1	IS 3025 (P-52) : 2003

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TEST REPORT

Report No	ETL/ PPCB/ 2020-224 B	Report Date	29.01.2021	Doc No.	ETL/QF/7.8/01

Sr. No.	Parameters	Outlet	General Std. Limits For Discharge (Inland Surface Water)	Protocol used
18.	Phosphate (as P), mg/l.	0.76	5	IS 3025 (P-31) : 1988
19.	Cadmium as Cd mg/L	ND (DL- 0.003)	2.0	IS 3025 (P-41) : 1998
20.	Zinc as Zn, mg/L	ND (DL- 0.05)	5.0	IS 3025 (P-49) : 1994
21.	Sulphide as SO_2 mg/L	0.54	2.0	APHA Method
22.	Fluoride (as F), mg/L	ND (DL- 0.1)	2.0	APHA Method
23.	Phenolic compounds (as C_6H_5OH), mg/L	ND (DL- 0.001)	1.0	IS 3025 (P-43) : 1992
24.	Manganese (as Mn), mg/L	ND (DL- 0.01)	2.0	APHA Method
25.	Nitrate Nitrogen as N, mg/L	0.22	10	IS 3025 (P-34) : 1988
26.	Residual Free Chlorine, mg/l	ND (DL- 0.1)	1	IS 3025 (P-26) : 1986
27.	Cyanide as CN, mg/L	ND (DL- 0.02)	0.2	APHA Method
28.	Mercury as Hg , mg/L	ND (DL- 0.001)	No Relaxation	IS 3025 (P-48)
29.	Bioassay (96 hrs), %	90 % fish survival after 96 hrs in 100 % effluent	90% fish survival after 96 hrs in 100 % effluent	IS 6582 : 1971

• *Parameter not covered under NABL scope ND- Not Detectable, DL- Detection Limit

*********End Report*********

Manager Lab./ Sr. Chemist

FOR, IS VALID ONLY FOR CONSENT PURPOSE NOT FOR MONITORING PURPOSE

(Authority Signatory)
QM / TM

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(Feb,2021 to Feb,2021)

GVK Power (Goindwal Sahib) Ltd.

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TEST REPORT

Report No	ETL/ PPCB/ 2020-225	Report Date	08.02.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB 225
Period of Testing: 04.02.2021 - 08.02.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Boiler Stack (Unit - II) - 865 TPH
4	Sampling Point	:	From the port hole
5	Date & Time of Sampling	:	03.02.2021
6	Purpose of Analysis	:	Consent Purpose
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P - 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	17
2.	Stack Temperature (°C)	:	130
3.	Velocity (m/sec)	:	21.02
4.	Source of Emission & capacity	:	Boiler Stack (Unit – II) - 865 TPH
5.	Diameter of Stack	:	4.8 m
6.	Height of Stack from Ground Level	:	275 m
7.	Type of Fuel Used	:	Coal
8.	Duration of sampling	:	36 min
9.	Emission Control	:	ESPs
10.	General sensory observation	:	Normal
11.	Recovery of material	:	Nil
12.	Volumetric flow rate VFR (NM^3/Hr)	:	972977

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits CPCB	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	36.7	50	IS 11255 (Part 1) 1985
2.	Sulphur Dioxide (SO_2), mg/NM^3	755	600	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_2), mg/NM^3	374.2	450	IS 11255 (Part 7) 2005
4.	Mercury (Hg), mg/NM^3	ND (BDL - 0.005)	0.03	ETL/SOP/S - 010

Remarks: 12% of CO_2 correction is the reference value for particulate matter. Sr. No. 2 & 3 Corrected at 6% O_2. ND – Not Detectable (BDL – Below Detectable Limit). *Parameter not covered under NABL scope.

**********End Report**********

Manager Lab./ Sr. Chemist

Authority Signatory
QM / TM
Date 8.2.2021

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(March,2021 to March,2021)

GVK Power (Goindwal Sahib) Ltd.

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TEST REPORT

Report No	ETL/ PPCB/ 2021-226	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 226
Period of Testing: 08.03.2021-10.03.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Process Stack – 1 (Ash Silo Plant)
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	06.03.2021
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	27
2.	Stack Temperature (°C)	:	50
3.	Velocity (m/sec)	:	14.01
4.	Source of Emission & capacity	:	Process Stack - 1 (Ash Silo Plant)
5.	Diameter of Stack	:	30 cm
6.	Height of Stack above roof Level	:	40 m
7.	Type of Fuel Used	:	Electricity
8.	Duration of sampling	:	38 min
9.	Emission Control (if any)	:	Cyclone followed by Bag Filter
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13.	Volumetric flow rate VFR (NM^3/Hr)	:	3212

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	64	150	IS 11255 (Part 1) 1985

**********End Report**********

Manager Lab./ Sr. Chemist

REPORT IS VALID ONLY FOR CONSENT PURPOSES & NOT FOR MONITORING PURPOSES

(Dr. Rajender Kumar)
MD
Date: 3-21

Environ Testing Lab & Research Centre * PANIPAT (HARYANA)

NOTE
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TEST REPORT

Report No	ETL/ PPCB/ 2021-227	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib.
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 227
Period of Testing: 08.03.2021-10.03.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Process Stack – II (Ash Silo Plant)
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	05.03.2021
6	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	26
2.	Stack Temperature (°C)	:	50
3.	Velocity (m/sec)	:	14.60
4.	Source of Emission & capacity	:	Process Stack – II (Ash Silo Plant)
5.	Diameter of Stack	:	30 cm
6.	Height of Stack above roof Level	:	40 m
7.	Type of Fuel Used	:	Electricity
8.	Duration of sampling	:	37 min
9	Emission Control (if any)	:	Cyclone followed by Bag Filter
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13.	Volumetric flow rate VFR (NM^3/Hr)	:	3198

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	61	150	IS 11255 (Part 1) 1985

*********End Report*********

Manager Lab./ Sr. Chemist

REPORT IS VALID
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Rajender
Authorised Sign.
Date 10-3-21
(Dr. Rajender Kumar)
MD

Envirochem Testing Lab & Research Centre * PANIPAT *

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TEST REPORT

Report No	ETL/ PPCB/ 2021-228	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 228
Period of Testing: 08.03.2021-10.03.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Process Stack - Stack Attached to Dust Extraction (Crusher House – 39000M^3/Hr)
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	05.03.2021
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	26
2.	Stack Temperature (°C)	:	52
3.	Velocity (m/sec)	:	13.01
4.	Source of Emission & capacity	:	Process Stack - Stack Attached to Dust Extraction (Crusher House – 39000M^3/Hr)
5.	Diameter of Stack	:	127.5 cm
6.	Height of Stack above roof Level	:	40.9 m
7.	Type of Fuel Used	:	Electricity
8.	Duration of sampling	:	38 min
9.	Emission Control (if any)	:	Cyclone followed by Bag Filter
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13.	Volumetric flow rate VFR (NM^3/Hr)	:	30121

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	73	150	IS 11255 (Part 1) 1985

*********End Report*********

Manager Lab./ Sr. Chemist

(Dr. Rajender Kumar)
MD

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TEST REPORT

Report No	ETL/ PPCB/ 2021-229	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 229
Period of Testing: 08.03.2021-10.03.2021

SAMPLE PARTICULARS

1.	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2.	Type of Industry	:	Thermal Power Plant
3.	Type of Sample	:	Process Stack - Stack Attached to Bunker House (Unit – I) 10200M^3/Hr
4.	Sampling Point	:	From the port hole
5.	Date of Sampling	:	05.03.2021
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	26
2.	Stack Temperature (°C)	:	52
3.	Velocity (m/sec)	:	11.66
4.	Source of Emission & capacity	:	Process Stack - Stack Attached to Bunker House (Unit – I) 10200M^3/Hr
5.	Diameter of Stack	:	51.4 cm
6.	Height of Stack above roof Level	:	61 m
7.	Type of Fuel Used	:	Electricity
8.	Duration of sampling	:	48 min
9	Emission Control (if any)	:	Cyclone followed by Bag Filter
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13.	Volumetric flow rate VFR (NM^3/Hr)	:	7615

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	71	150	IS 11255 (Part 1) 1985

**********End Report**********

Manager Lab./ Sr. Chemist

REPORT IS VALID ONLY FOR CONSENT PURPOSES NOT FOR MONITORING PURPOSE

(Dr. Rajender Kumar)
MD
Date 16-3-21

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TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2021-230	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 230
Period of Testing: 08.03.2021-10.03.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	M/s GVK Power (Goindwal Sahib) Ltd.
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Process Stack-Stack Attached to Bag Filter Bunker House (Unit-II) 10200M^3/Hr
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	04.03.2021
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	27
2.	Stack Temperature (°C)	:	52
3.	Velocity (m/sec)	:	13.11
4.	Source of Emission & capacity	:	Process Stack-Stack Attached to Bag Filter Bunker House (Unit-II) 10200M^3/Hr
5.	Diameter of Stack	:	51.4 cm
6.	Height of Stack above roof Level	:	61 m
7.	Type of Fuel Used	:	Electricity
8.	Duration of sampling	:	43 min
9.	Emission Control (if any)	:	Cyclone followed by Bag Filter
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13.	Volumetric flow rate VFR (NM^3/Hr)	:	7988

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	70	150	IS 11255 (Part 1) 1985

*********End Report*********

Manager Lab./ Sr. Chemist

(Dr. Rajender Kumar)
MD

FOR CONSENT PURPOSE
FOR MONITORING PURPOSE

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TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2021-231	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tam Taran - 143422

Party's Ref No: As per agreement

Work Order No: PPCB - 231

Period of Testing: 08.03.2021-10.03.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Process Stack-Stack Attached to Bag Filter (Junction Tower - I) 25200 M^3/Hr
4	Sampling Point	:	From the port hole
5	Date of Sampling	:	04.03.2021
6.	Purpose of Analysis	:	Consent
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P - 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	25
2.	Stack Temperature (°C)	:	51
3.	Velocity (m/sec)	:	12.33
4.	Source of Emission & capacity	:	Process Stack-Stack Attached to Bag Filter (Junction Tower - I) 25200 M^3/Hr
5.	Diameter of Stack	:	81.5 cm
6.	Height of Stack above roof Level	:	66.3 m
7.	Type of Fuel Used	:	Electricity
8.	Duration of sampling	:	44 min
9.	Emission Control (if any)	:	Cyclone followed by Bag Filter
10.	Fugitive Emission	:	Nil
11.	General sensory observation	:	Normal
12.	Recovery of material	:	Nil
13.	Volumetric flow rate VFR (NM^3/Hr)	:	19788

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	67	150	IS 11255 (Part 1) 1985

*********End Report*********

Manager Lab./ Sr. Chemist

REPORT IS VALID
ONLY FOR CONSENT PURPOSES
NOT FOR MONITORING PURPOSE

(Dr. Rajender Kumar)
MD

Date: 10-3-21

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ENVIROCHEM TESTING LAB
& Research Centre
(NABL ACCREDITED AND GOVT. APPROVED LAB)
(An ISO 9001 : 2015, ISO 14001 : 2015, ISO 18001 : 2007 Certified Lab)
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M.: +91 90348 91129, 89501 75386, 96719 56782
Email : envirochemtestinglab@gmail.com Web. : www.atlrc.com
TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2021-232	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 232
Period of Testing: 08.03.2021 - 10.03.2021

SAMPLE PARTICULARS

1.	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2.	Type of Industry	:	Thermal Power Plant
3.	Type of Sample	:	Boiler Stack (Unit – 1) - 865 TPH
4.	Sampling Point	:	From the port hole
5.	Date & Time of Sampling	:	06.03.2021
6.	Purpose of Analysis	:	Consent Purpose
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	26
2.	Stack Temperature (°C)	:	140
3.	Velocity (m/sec)	:	20.12
4.	Source of Emission & capacity	:	Boiler Stack (Unit – 1) - 865 TPH
5.	Diameter of Stack	:	4.8 m
6.	Height of Stack from Ground Level	:	275 m
7.	Type of Fuel Used	:	Coal
8.	Duration of sampling	:	36 min
9.	Emission Control	:	ESPs
10.	General sensory observation	:	Normal
11.	Recovery of material	:	Nil
12	Volumetric flow rate VFR (NM^3/Hr)	:	908768

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits (CPCB)	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	40.2	50	IS 11255 (Part 1) 1985
2.	Sulphur Dioxide (SO_2), mg/NM^3	756	600	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_x), mg/NM^3	371	450	IS 11255 (Part 7) 2005
4.	Mercury (Hg), mg/NM^3 *	ND (BDL - 0.005)	0.03	ETL/SOP/S - 010

Remarks: 12% of CO_2 correction is the reference value for particulate matter. Sr. No. 2 & 3 Corrected at 6% O_2. ND - Not Detectable (BDL - Below Detectable Limit). *Parameter not covered under NABL scope.

**********End Report**********

Manager Lab./ Sr. Chemist

(Dr. Rajender Kumar)
MD

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Email : envirochemtestinglab@gmail.com Web. : www.etlrc.com
TC-6015

TEST REPORT

Report No	ETL/ PPCB/ 2021-233	Report Date	10.03.2021	Doc No.	ETL/QF/7.8/01

Issue to:
M/s GVK Power (Goindwal Sahib) Ltd.
Kapurthala Road, Goindwal Sahib,
Distt. Tarn Taran - 143422

Party's Ref No: As per agreement
Work Order No: PPCB - 233
Period of Testing: 08.03.2021 – 10.03.2021

SAMPLE PARTICULARS

1	Name of the Unit	:	**M/s GVK Power (Goindwal Sahib) Ltd.**
2	Type of Industry	:	Thermal Power Plant
3	Type of Sample	:	Boiler Stack (Unit – II) - 865 TPH
4	Sampling Point	:	From the port hole
5	Date & Time of Sampling	:	06.03.2021
6.	Purpose of Analysis	:	Consent Purpose
7.	Sample Collected by / Supplied by	:	By Lab Representative
8.	Method of sampling	:	IS 11255 (P – 1 & 3)

OBSERVATIONS

1.	Metering Temperature (°C)	:	26
2.	Stack Temperature (°C)	:	128
3.	Velocity (m/sec)	:	20.40
4.	Source of Emission & capacity	:	Boiler Stack (Unit – II) - 865 TPH
5	Diameter of Stack	:	4.8 m
6.	Height of Stack from Ground Level	:	275 m
7.	Type of Fuel Used	:	Coal
8.	Duration of sampling	:	36 min
9.	Emission Control	:	ESPs
10.	General sensory observation	:	Normal
11.	Recovery of material	:	Nil
12	Volumetric flow rate VFR (NM^3/Hr)	:	948988

TEST RESULTS

Sr. No.	Parameters	Results	Standard Limits CPCB	Protocol Used
1.	Particulate Matter (PM), mg/NM^3	36	50	IS 11255 (Part 1) 1985
2.	Sulphur Dioxide (SO_2), mg/NM^3	796	600	IS 11255 (Part 2) 1985
3.	Oxides of Nitrogen (NO_x), mg/NM^3	412	450	IS 11255 (Part 7) 2005
4.	Mercury (Hg), mg/NM^3*	ND (BDL - 0.005)	0.03	ETL/SOP/S - 010

Remarks: 12% of CO_2 correction is the reference value for particulate matter. Sr. No. 2 & 3 Corrected at 6% O_2, ND – Not Detectable (BDL – Below Detectable Limit), *Parameter not covered under NABL scope

*********End Report*********

Manager Lab./ Sr. Chemist

(Dr. Rajender Kumar)
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