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Letter.No.: NPL/HSE/RB/MoEFCC/AD/240530/1

Date 30.05.2024

To,

**The Additional Director,  
Ministry of Environment, Forest and Climate Change  
(Northern Region)  
Integrated Regional Office,  
Bays Nos. 24-25, Sector 31-A,  
Chandigarh-160030**

**Ref: Environmental Clearance No J-13011/44/2008- IA-II (T) dated 3<sup>rd</sup> October 2008 and as Amended on dated 15<sup>th</sup> November 2010 and Extension dated 5<sup>th</sup> February 2014 & Amendment in Environmental Clearance (EC) on dated 04.07.2022.**

**Sub: Six Monthly Environmental Clearance Compliance Report for the Period of 1<sup>st</sup> October 2023 to 31<sup>st</sup> March 2024.**

**Dear Sir,**

Please find enclosed Six-Monthly Environmental Clearance Compliance Report of M/s Nabha Power Ltd., Vill. Nalash, Distt- Patiala (Punjab) for the period from 1<sup>st</sup> October 2023 to 31<sup>st</sup> March 2024.

**Thanking you,**

Yours Sincerely,

**(Rajiv Bhandari)**

**Authorized Signatory**

**Nabha Power Limited**

Encl: As above.

- CC: 1) The Executive Environment Engineer, Regional Office, Patiala, Ground Floor, Vatavaran Bhawan, Nabha Road, Patiala.  
2) Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex East Arjun Nagar, Delhi.  
3) Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi.

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Corporate Office: L&T House, N M Marg, Ballard Estate, Mumbai 400 001

CIN No: U40102PB2007PLC031039

**SIX MONTHLY COMPLIANCE  
REPORT OF ENVIRONMENTAL  
CLEARANCE CONDITIONS  
NABHA POWER LIMITED  
2×700 MW THERMAL POWER PLANT**



**VILL. NALASH  
DISTT. PATIALA  
(PUNJAB)**

**Submitted to:**

- **Additional Director, Integrated Regional Office (Northern Region), Ministry of Environment, Forests and Climate Change, Chandigarh-160030.**
- **Ministry of Environment, Forests and Climate Change, New Delhi-110003.**
- **Central Pollution Control Board, Delhi**
- **Punjab State Pollution Control Board, Patiala.**

*Submitted By:*  
**NABHA POWER LIMITED  
VILL. NALASH  
PATIALA (PUNJAB)**

**Period: 1<sup>st</sup> October-2023 to 31<sup>st</sup> March-2024.**

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**Introduction**

Nabha Power Limited (NPL), was established as Special Purpose Vehicle (SPV) by the erstwhile Punjab State Electricity Board (PSEB) to develop the Rajpura Thermal Power Project at a site near village Nalash, Distt Patiala, Punjab. An RfQ/RfP was floated by PSEB in line with the Case 2 competitive bidding guidelines, Govt of India (GoI) and L&T Power Development Limited (a wholly owned subsidiary of L&T) was identified as the lowest bidder. NPL has signed Power Purchase Agreement on 18th January 2010 with PSEB and the NPL was also transferred to L&T Power Development Limited as its wholly owned subsidiary on 18<sup>th</sup> January 2010.

The 1400 MW power plant is constructed as a unit configuration of 2 x 700 MW units, with one steam turbine and one boiler for each unit.

NPL is having two Pulverized Fuel Boilers, generating steam at 25.71MPa at 568 °C with two Condensing Turbo Generator Sets each having generating capacity of 700 MW of power. Installation of associated mechanical and electrical equipment, auxiliary units like coal, ash handling plant, water treatment plant, cooling water system, electrostatic precipitators (ESPs), NOx control equipment etc. are part of the total installation.

**SALIENT FEATURES OF NABHA POWER LTD.**

<b>Total Capacity</b>	2x700 MW (1400 MW)
Fuel Requirement and Source	5.8 MT/Year, SECL Mines
Water requirement and source	75 Cusec from Bhakra main canal
<b>Status</b>	Unit # 1 Operational since 1 <sup>st</sup> Feb 2014.
	Unit # 2 Operational since 10 <sup>th</sup> July 2014.

- Project Proponent** : Nabha Power Ltd.  
**Project Status** : U # 1 & U# 2 Synchronised on Feb-2014 and July-2014 respectively  
**References** : 1.No.J-13011/44/2008-IA-II(T)DTD 3<sup>rd</sup>Oct2008  
: 2.No.J-13011/44/2008-IA-II(T)DTD 15<sup>th</sup>Nov2010  
: 3.No.J-13011/44/2008-IA-II(T)DTD 5<sup>th</sup>Feb2014  
: 4.No.J-13011/44/2008-IA-II(T)DTD 4<sup>th</sup>July2022

**Compliance Report for the period of 1<sup>st</sup> October-2023 to 31<sup>st</sup> March-2024.**

**1. J-13011/44/2008- IA-II (T) DTD 3<sup>rd</sup>Oct 2008 for 2x660 MW**

S. No.	MOEF Conditions	Compliance Status
1.	The total land requirement for the project shall be restricted to 1278 acres.	The land requirement for 1400 MW has been restricted within 1278 acres only.
2.	Prior clearance from the competent authority shall be obtained for locating the proposed power plant in proximity (about 3 kms) of the defence installation. A copy of the same shall be furnished to the ministry and the regional office of this ministry within one month from the date of issue of this clearance letter.	NOC from Ministry of defence & AAI obtained on 25 <sup>th</sup> May 2009, Ref No. 21(7)/2008/D(Coord) & 22 <sup>nd</sup> July,2008, Ref No.: No. AAI/20012/664/ 2008-ARI (NOC) respectively.
3.	Sulphur & ash contents in the coal to be used in the project shall not exceed 0.5% & 34%.	Sulphur in the coal being used is below 0.5%. The Testing Report is attached as <b>Annexure 1</b> . The condition of 34% Ash in coal does not exist Now. As per MoEF&CC Notification vide S.O.No.1561(E) Dtd.21.05.2020 "Use of coal by Thermal Power Plants, without stipulations as regards ash content or distance, shall be permitted subject to compliance with specified emission norms for particulate matter" (PM < 50 mg/nm <sup>3</sup> ). We are maintaining the specified emission norms. The stack emission monitoring reports from PPCB as well as from MoEF&CC and NABL approved laboratory for particulate matter are attached as <b>Annexure-2</b> .
4.	A bi-flue stack of height 275 m shall be provided with continuous online monitoring equipment for Sox, NOx & particulate matter. Exit velocity of flue gas should not be less than 25 m/sec.	Continuous online monitoring equipment are functional at 275 Mtr. stack on both the flues attached to Boiler 1 & Boiler 2 and monitoring of PM, Sox & NOx. is being done. As per EC validity extension dated 5.02.2014, exit velocity of flue gases shall not be less than 22 m/s therefore the exit velocity of flue gas is being always maintained more than 22 m/sec in both the stacks. The Stack Emission Monitoring Reports from MoEF & CC and NABL approved laboratory are attached as <b>Annexure-2</b> .
5.	High efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure particulate emission doesn't exceed 50 mg/m <sup>3</sup> .	The ESP's attached to Boilers 1 & 2 are functional and have efficiencies more than 99.99%. The SPM emissions are < 50 mg/Nm <sup>3</sup> . The stack emission monitoring reports from PPCB as well as from MoEF&CC and NABL approved laboratory for particulate matter is attached as <b>Annexure-2</b> .
6.	Space provision shall be kept for retrofitting for FGD, if required at later date.	Complied.
7.	Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	The Dust extraction system & Dust suppression system (water sprinklers) are operational in the coal handling area, ash handling and at all transfer points. The photographs of the same is attached as <b>Annexure-3</b> .
8.	Fly ash to be collected in dry form in storage facility (silos) shall be provided. 100% utilization of fly ash	Fly Ash Silos (3 Nos.) are fully operational. The utilization report of Fly ash is being submitted to Regional Office

	shall be achieved from day one. Unutilized fly ash in emergency and bottom ash shall be disposed in ash pond and bottom ash in conventional slurry mode. Mercury and other heavy metals (Hg, Cr, Pb etc.) will be monitored in bottom ash and fly ash as also in the effluent emanating from ash pond.	PPCB, MoEF&CC, CPCB and CEA on yearly basis. Ash utilization report for the period of 1 <sup>st</sup> April-23 to 31 <sup>st</sup> March-2024 is attached as <b>Annexure-4</b> . Analysis of heavy metals are being done for both bottom & fly ash on six monthly basis. Latest reports are attached as <b>Annexure-5</b> .
9.	Ash pond shall be lined with HDPE lining. Adequate safety measures shall also be implemented to protect ash dyke from getting breached.	Ash Pond bed is provided with HDPE lining (500 microns thick) over 50 mm thick sand cushion and top of HDPE liner is protected with 300 mm earth cover.
10.	Closed cycle cooling system with cooling towers shall be provided. Effluents shall be treated as per the prescribed norms.	Closed cycle cooling system with cooling towers is provided. No effluent is generated as the plant is designed for ZLD (Zero Liquid Discharge).
11.	The treated effluents conforming to the prescribed standard shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during Monsoon. Arrangement shall be made that effluent & storm water do not get mix.	The Power plant is based on Zero Discharge (ZLD) concept and the treated effluents conforming to prescribed standards are being re- circulated and reused within the Plant. There is no discharge outside the plant boundary.
12.	A Sewage Treatment Plant shall be provided, and treated sewage shall be used for raising green belt/plantation.	The Sewage treatment plant of 50 KLD capacity is in operation. The treated water is being used for green belt development/Plantation. The STP Treated effluent quality reports from PPCB as well as from MoEF&CC and NABL approved laboratory are attached as <b>Annexure-6</b> .
13.	Rainwater harvesting should be adopted. Central Ground Water 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.	Rainwater harvesting pits are in place and made as per the Rainwater harvesting scheme approved by CGWA.
14.	Adequate safety measures shall be provided in plant area to check/minimize spontaneous fire in coal yard, especially during summer season. Copy 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.	The safety measures submitted to MOEF vide letter ref: NPL/SKN/MOEF/1423 dated: 28th June 2012 have been implemented to check/minimize spontaneous fire in coal yard.
15.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of project.	Adequate arrangements were made for construction labour such as toilets, STP, safe drinking water, medical health care etc. during project stage.
16.	Storage facilities for liquid fuel such as LDO and HFO/LSHS shall be made in the plant area where risk is minimum to the storage facilities. Onsite and off-site disaster management plan shall be prepared to meet any eventuality in case of an accident taking place. Mock drills shall be conducted regularly and based on the same, modification required, if any shall be incorporated in the DMP.	The Storage tanks for LDO & HFO storage have been made after necessary risk assessment. On-site disaster management plan is prepared, and the adequacy of the plan is being tested on regular basis through conducting mock drills.
17.	Regular monitoring of ground water in and around ash pond area shall be carried out, records maintained, and six-monthly reports shall be furnished to Regional Office, Chandigarh.	Regular monitoring of ground water in and around ash pond is being done and reports are being submitted to the PPCB monthly basis. The latest reports are attached as <b>Annexure-7</b> .
18.	A green belt of adequate width and density shall be developed around plant periphery covering about 1/3 <sup>rd</sup> of project area preferably with local species.	1/3 <sup>rd</sup> of the total area have been covered under green belt with native species. The Green Belt Development photographs are attached as <b>Annexure-8</b> .

19.	Activities under CSR shall be enhanced with proper financial allocation. Details of these activities shall be submitted to the Regional Office of the Ministry, SPCB and the Ministry.	Annual activities continue across the year as per allocated financial budget to improve the socio-economic status of surrounding areas. A snapshot of the CSR projects and initiatives is attached as <b>Annexure No-9</b> .
20.	First aid & sanitation arrangement shall be made for the drivers and other contract workers during construction phase.	First aid centre (OHC) & adequate sanitation arrangement are available for employees as well as contractual employees.
21.	Noise level emanating from turbines shall be limited to 75 dB (A). For people working in the high noise area, requisite personal protective equipment like Earplug/earmuffs etc. shall be provided. Workers engaged in noisy area such as turbine area, air compressors etc. shall be periodically examined to maintain audiometry record and for any hearing loss including shifting to non-noisy/less noisy areas.	The Noise levels are maintained well below the prescribed standards. PPE's are being provided to all the workers depending upon the task being performed. Medical examination of the workers engaged in high noise area is being done on six monthly basis and records being maintained as per statutory norms.
22.	Regular monitoring of ground level concentration of SO <sub>2</sub> , NO <sub>x</sub> , SPM, RSPM and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of the monitoring shall be decided in consultation with SPCB. Periodic report to be submitted to Regional office of this Ministry.	Monitoring reports are regularly being submitted to Regional office of Ministry and PPCB. Monitoring reports are attached as <b>Annexure-10</b> .
23.	The project proponent shall advertise in two local newspaper widely circulated in the region around the project, one of which shall be in the vernacular language of the locality/Municipal area/Gram Panchayat concerned and on the company's website within seven days from the date of clearance letter, informing that the project has been accorded environment clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at website of the ministry of Environment and forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	Complied.
24.	A separate Environment Management Cell with qualified staff to be set up for implementation of the stipulated environmental safeguards.	HSE department comprising of qualified staff with adequate experience and knowledge is in place to cater environmental responsibilities & needs.
25.	Half yearly report on status of implementation of the stipulated conditions and environmental safeguards shall be submitted to this Ministry/Regional Office/CPCB/SPCB.	Half year reports are regularly being submitted to <ul style="list-style-type: none"> <li>❖ MoEF&amp;CC New Delhi,</li> <li>❖ MoEF&amp;CC, IRO (North Region), Chandigarh,</li> <li>❖ CPCB, Delhi and</li> <li>❖ PPCB Patiala.</li> </ul>
26.	Regional office of the Ministry of Environment & Forests located at Chandigarh will monitor implementation of stipulated conditions. A complete set of documents including EIA report & EMP report along with additional information submitted from time to time shall be forwarded to the regional office for their use during monitoring.	Complied.

27.	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These costs shall be included as part of project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes & year wise expenditure should be reported to Ministry.	Separate funds are allocated. Funds spent in the FY 2023-2024 (1 <sup>st</sup> April-23 to 31 <sup>st</sup> March -2024) are attached as <b>Annexure No-11</b> .
28.	The project authorities shall inform the regional office as well as the Ministry regarding the date of financial closure and final approval of project by concerned authorities and the dates of start of land development work and commissioning of plant.	Plant is in operation since 2014 after obtaining all necessary approvals from state/central government.
29.	Full co-operation should be extended to the scientists/officers from the Ministry/Regional office of the Ministry at Chandigarh/the CPCB/the SPCB who would be monitoring compliance of environmental status.	NPL is providing full co-operation and support to the scientists/officers of MoEF&CC/CPCB/SPCB. who are monitoring compliance of environmental status, time to time.

**2. J-13011/44/2008- IA-II(T)DTD15th Nov 2010 for change in configuration from 2 x 660 MW to 2 x 700 MW.**

30.	No additional coal consumption beyond 5.8 MTPA (at 85 % PLF) earlier envisaged for 2 x 660 MW and no additional land for the enhanced capacity shall be permitted.	Being Complied.
31.	The project proponent shall upload the status of compliance of the conditions stipulated in the environmental clearance issued vide Ministry's letter of even no. dated 03.10.2008, in its website and update periodically and also simultaneously send the same by email to regional office of Ministry of Environment and Forests.	NPL website is live & the compliance reports are uploaded periodically on website. Website address: <a href="http://www.Intnabhapower.com">http://www.Intnabhapower.com</a>
32.	Critical pollutants levels including NO <sub>x</sub> , RPSM10 and 2.5, SO <sub>2</sub> shall be regularly monitored, and results displayed in your website and also at main gate of the power plant.	Monitoring results are uploaded on NPL website as well as displayed at main gate. The Photograph of main gate display is attached as <b>Annexure-12</b> .

**3. J-13011/44/2008- IA-II(T) DTD 5<sup>th</sup>Feb2014 for extension of validity of Environmental Clearance.**

S. No.	MOEF Conditions	Compliance Status
33	Harnessing solar power within the premises of the plant particularly at the available roof tops shall be undertaken and status of implementation shall be submitted periodically to regional office of ministry	Solar panels are provided on field hostel roof, Clarifier area, CHP and at DM plant area and are functional. The harness report is attached as <b>Annexure No-13</b> .
34	A long-term study on radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radioactivity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Heavy metal & Radioactive contents in coal, fly ash and bottom ash are being analysed on six monthly basis. Latest reports are attached as <b>Annexure-5,14 &amp;15</b> .
35	Exit velocity of flue gases shall not be less than 22 m/s. Mercury emissions from stack shall also be monitored on periodic basis.	The exit velocity of flue gases is more than 22 m/s. Mercury emissions from the stacks are regularly monitored and the reports are being submitted to MOEF&CC on periodic basis. The reports are attached as <b>Annexure-2</b> .

36	Fugitive emissions shall be controlled to prevent impact on agriculture or non-agriculture land.	Adequate measures to control fugitive emissions are already in place.
37	No ground water shall be extracted for use in operation of power plant even in lean season.	Complied.
38	Source sustainability 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 ministry within six months.	For Nabha Power Limited the source of water is Bhakhra Canal and necessary permission in this regard was taken from Irrigation Department, Punjab and was submitted with your kind office before grant of Environmental Clearance. When we had applied for Extn. of EC, our plant was already Commissioned, and we were having valid Consent to Operate from State Pollution Control Board. <b>Therefore, the said condition is not applicable on us.</b>
39	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.	The Hydrology study of the area was conducted before the grant of EC by MOEF&CC. No groundwater abstraction is being done. We are only using Canal water for the generation of Power. <b>Therefore, the said condition is not applicable on us.</b>
40	Minimum required environment flow suggested by the competent authority of the state government shall be maintained in the Channel / Rivers (as applicable) even in lean season.	Agreed
41	C.O.C of 5.0 shall be adopted	Adopted and being complied.
42	Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an option for fly 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 for mine void filling is to be adopted, prior detailed study of soil characteristics of 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 coordination with the State Pollution Control Board	Fly ash is being utilized as per the MoEF&CC Notification vide S.O. 5481(E) dated 31.12.2021 and its Amendments.
43	Green belt consisting of 3 tiers of plantations of native species around the plant and at least 100m width shall be raised. Wherever 100m width is not feasible a 50 m width shall be raised, and adequate justification shall be submitted to Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 75 %.	Complied. The Green Belt Development photographs are attached as <b>Annexure-8</b>
44	Three tier green belt shall be developed all around ash pond over and above the green belt around the plant boundary.	Complied.
45	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.	Being complied
46	The project proponent shall also adequately contribute in the development of the neighbouring 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.	Being Complied
47	CSR scheme should address Public Hearing issues and shall be undertaken based on need based assessment in and around villages within 5.0 km of the site and in constant consultation with the village Panchayat and District administration. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting	Complied Presently working in 49 villages (5 Km) radius, the schemes are implemented in targeted villages in coordination with village panchayats & District Administration.  The milestones of H2 are as under:

	<p>relevant training shall also be undertaken. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such program. Company shall provide separate budget for community development activities and income generating programs. Vocational training program for possible self-employment and jobs shall be imparted to identify villagers free of cost.</p>	<p>Skills</p> <ul style="list-style-type: none"> <li>• Production Centres- Facilitated external orders worth 39 Lakhs for women artisans (66 No., 6 centres)</li> <li>• Training in beautician and stitching courses - at 4 No. skill centres. 123 have been trained and 135 are undergoing training.</li> </ul> <p>Education &amp; Sports</p> <ul style="list-style-type: none"> <li>• Learning Enrichment Program - 466 Students, (16 schools) are being covered.</li> <li>• Contingency Support to Govt. Schools- 10 Schools were provided with infrastructure improvement like mid floor repairing, tiling works and classroom construction (Benefits 1200 Students)</li> <li>• NPL Scholarship- 72 recipients (69 girls and 3 boys) under GNM and BCA courses, 82 Scholars were provided Tablets.</li> <li>• Safe Drinking Water – Installation of Water coolers and purifiers in 22 Government Schools (benefitted 2500 children).</li> <li>• NPL Sports Academy - 89 children &amp; youth are undergoing athletic training in village Dhumman, Youth sports club of 49 villages were provided sports kits.</li> <li>• Athletic Meet &amp; Cylothon under “GO-GREEN initiative” -830 children participated.</li> <li>• Rural Sports Tournaments-2 Tournaments, 1000 youth.</li> </ul> <p>Rural Infrastructure</p> <ul style="list-style-type: none"> <li>• EWS Housing- Handed over EWS housing projects to 14 families.</li> <li>• Road Repair &amp; Construction- 10 Villages covered.</li> <li>• Renovation of Panchayat Buildings: In 4 Villages.</li> <li>• Road Safety- Organised Road safety drive in association of with Traffic police and Youth Club members, covered over 1000 vehicles.</li> </ul> <p>Health</p> <ul style="list-style-type: none"> <li>• Health Camps (13 Nos.) – 2666 villagers benefited from health camps.</li> <li>• Infrastructure Support to Govt Hospital -Set up Advanced OT &amp; Lab facility in CHC Kalomajra.</li> <li>• Blood Donation Camps (4 No.) -Over 350 units voluntary donation.</li> </ul> <p>Water &amp; Environment</p> <ul style="list-style-type: none"> <li>• Cleaning of natural drains &amp; ponds - In 12 Villages</li> <li>• Nanak Bagichi (10,000 plants)- Bio-diversity rich plantation of 18 varieties in 2 villages.</li> <li>• Solar Installation (5+5+2 KW)- Covered Production centers and Playground</li> </ul>
48	<p>It shall be ensured that in-built monitoring 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.</p>	<p>Being Complied Internal Planning and monitoring done by CSR Committee chaired by Senior Plant Official; the committee's meetings are conducted on quarterly basis.</p>
49	<p>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</p>	<p>An Environmental Cell Headed by DGM-HSE is already in place, who directly reports to the Head of Organisation.</p>

	report to the Head of the organization.	
50	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.	Regular monitoring of ground water quality including heavy metals is being carried out regularly in and around the Ash Dyke. Piezometer wells are established around the ash pond area and being regularly monitored. The latest reports are attached as <b>Annexure-7</b> .
51	Monitoring of the surface 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.	No Ground Water is being abstracted as we are using Bhakra Canal water for generation of Power. The quality and quantity of the canal water is monitored, and records are being maintained. Surface water reports are attached as <b>Annexure-16</b> . We are already monitoring heavy metals in the ground water by taking samples through a piezometer on a monthly basis and submitting the respective reports to the regional office of the PPCB at Patiala. The latest reports are attached as <b>Annexure-7</b> .
52	The environment statement for each financial year ending 31 <sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Complied.  The last environmental statement report was submitted on 29.09.2023 to the Integrated Regional Office of MoEF&CC at Chandigarh and the PPCB, Patiala.
53	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.	HSE Policy has been framed and accordingly officers have been designated for achieving the objectives by adherence to the Policy. The organisation is certified for Integrated Management System requirements comprising of (ISO 9001, 14001 & 45001 & 50001)

**4. No -J-13011/44/2008- IA-II (T) dated 4<sup>th</sup> July 2022, Amendment in Environment Clearance.**

54	An epidemiology study shall be carried out in every two years and report shall be submitted to Regional Office of MoEF&CC.	Epidemiology study was carried out. The copy of same is attached as <b>Annexure-17</b> .
55	A Public grievances redressal cell to address the social and environmental concerns shall be established under the supervision of project head, regular status of activities of the cell be submitted in six monthly compliance report.	A Public grievances redressal cell has been made under the chairmanship of O&M Head to address the social and environmental concerns. The copy of Minutes of Meeting is attached as <b>Annexure-18</b> .

## **Annexure – 1**

### **Test Report of Sulphur % in Coal**



## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura, 140401 Punjab, India	<b>Sample Reg. No.</b> : B01-2403150006 <b>Sample Reg. Date.</b> : 15/03/2024 <b>Report Date.</b> : 27/03/2024 <b>Report No.</b> : ICB-2403270104 <b>Customer Ref. No.</b> : PO <b>Letter Dated</b> : 25/11/2022 <b>NABL ULR No.</b> : TC592624000005084F
--	---

### Sample Particulars

<b>Name of Sample<sup>#</sup></b> : Coal	
<b>Submitted By<sup>#</sup></b> : Nabha Power Limited	
<b>Batch No.<sup>#</sup></b> : NA	<b>Batch Size<sup>#</sup></b> : NA
<b>Manufactured By<sup>#</sup></b> : NA	<b>Mfg. Lic. No.<sup>#</sup></b> : NA
<b>Supplied By<sup>#</sup></b> : Not Specified	
<b>Date of Manufacture<sup>#</sup></b> : NA	<b>Date of Expiry<sup>#</sup></b> : NA
<b>Sample Qty<sup>#</sup></b> : 500gm	<b>Sample Condition</b> : Good
<b>Grade<sup>#</sup></b> : NA	<b>Brand Name<sup>#</sup></b> : NA
<b>Official Seal</b> : Not Applicable	<b>Official Signature</b> : Not Applicable
<b>Packaging Details</b> : Packed in poly pack	<b>Declared values(if any)</b> : Not Specified
<b>Any Other Information</b> : Sample collected by Lab rep. on 12.03.2024	
<b>Test Report as per</b> : Party Specification	<b>With Amendent No.(s)</b> : Not Specified

### Test Results

<b>Analysis started on</b> : 25/03/2024	<b>Analysis completed on</b> : 27/03/2024					
<b>Description</b> : Coal						
S. No.	Parameter	Unit	Instrument	Method	Requirements	Result
	<b>Discipline : Chemical</b>					
	<b>Group : Solid Fuels</b>					
1	<b>Chemical Parameters</b>					
(a)	Sulphur(as S)	NA	Muffle Furnace	IS:1350(P-3)	NA	0.46

# represents Customer Defined Fields

**Remarks:** Party asked for the above tests only.

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



27/03/2024  
**Brijesh Singh**  
 Verified by



27/03/2024  
**Kamal Grover**  
 Authorised by

### Interstellar Testing Centre PVT. LTD.

86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)  
 Panchkula-134109 (Haryana)  
 Phone : (O) 0172-2561543, 2565825  
 Email : customersupport@itclabs.com  
 Visit us : www.itclabs.com

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## **Annexure- 2**

# **Stack Emission Monitoring Results and Photograph of Continuous Emission Monitoring System (CEMS).**

## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312250933
	<b>Sample Reg. Date</b> :25-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291122
	<b>NABL ULR No.</b> :TC592623000014685F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: EPA-1986, PCLS/02/2021
<b>Sampling Information :</b>	
Date of Monitoring	: 20-12-2023
Time of Monitoring	: 14:20 to 15:08 hrs
Name of the emission source monitored	: Stack Emission of Boiler
Rated Capacity	: 2322 Ton
Capacity on sampling day	: -do-
Type of fuel used & its consumption	: Coal
Normal operating schedule	: 24 hrs
Stack Identification	: Stack attached to Boiler Unit-1 (2322 Ton)
Type of Stack/Duct	: Metal
Stack Height from Ground Level(m)	: 275
Diameter of the Stack(cm)	: 750
Sampling Duration(minutes)	: 48
Purpose of Monitoring	: For Self Monitoring
Air Pollution control measure	: ESPs
Status	: Working
Recovery of Material	: -
Fugitive Emission,if any	: Nil
<b>Observations :</b>	

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document QF : 2501

Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312250933
	<b>Sample Reg. Date</b> :25-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291122
	<b>NABL ULR No.</b> :TC592623000014685F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

Flue Gas Temperature, °C,Avg.	: 113
Flue Gas Velocity(m/s),Avg.	: 23.13
Volumetric Flow Rate(Nm <sup>3</sup> /hr.)	: 2752663.80
Ambient Air Temperature, °C	: 20

S.No.	Parameters	Instrument	Method	Specification	Result
<b>Discipline : Chemical</b>					
<b>Group : Atmospheric Pollution</b>					
<b>1.</b>	<b>General Parameters</b>				
a.	Particulate Matter, mg/Nm <sup>3</sup> (Corrected to 6% O <sub>2</sub> on dry basis)	Gravimetric	IS:11255(P-1)	Max. 50	44.36
b.	Sulphur Dioxide (SO <sub>2</sub> ), mg/Nm <sup>3</sup> (Corrected to 6% O <sub>2</sub> on dry basis)	Titration	IS:11255(P-2)	Max. 200	887.64
c.	Oxides of Nitrogen (NO <sub>x</sub> ), mg/Nm <sup>3</sup> (Corrected to 6% O <sub>2</sub> on dry basis)	UV-Spectrophotometer	IS:11255(P-7)	Max. 450	264.17
d.	Mercury(As Hg),mg/Nm <sup>3</sup>	ICPOES	USEPA Method	Max. 0.03	BLQ(LOQ:0.01)
e.	Carbon Monoxide(CO),% v/v	Orsat Apparatus	IS:13270	Max. 1.0	0.2
f.	Carbon Dioxide (CO <sub>2</sub> ), %	Orsat Apparatus	IS:13270	Not Specified	11.4

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirements as per EPA ACT 1986/PCLS/02/2021, Sample Collected by lab rep. on dated 20-12-2023,Sampling Procedure : SOP/ITC/EW/056.

**REMARKS :**N/A

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

### Disclaimer :

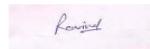
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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312250934
	<b>Sample Reg. Date</b> :25-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291108
	<b>NABL ULR No.</b> :TC592623000014678F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: EPA-1986, PCLS/02/2021
<b>Sampling Information :</b>	
Date of Monitoring	: 20-12-2023
Time of Monitoring	: 15:15 to 16:03 hrs
Name of the emission source monitored	: Stack Emission of Boiler
Rated Capacity	: 2322 Ton
Capacity on sampling day	: -do-
Type of fuel used & its consumption	: Coal
Normal operating schedule	: 24 hrs
Stack Identification	: Stack attached to Boiler Unit-2 (2322 Ton)
Type of Stack/Duct	: Metal
Stack Height from Ground Level(m)	: 275
Diameter of the Stack(cm)	: 750
Sampling Duration(minutes)	: 48
Purpose of Monitoring	: For Self Monitoring
Air Pollution control measure	: ESPs
Status	: Working
Recovery of Material	: -
Fugitive Emission,if any	: Nil
<b>Observations :</b>	

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312250934
	<b>Sample Reg. Date</b> :25-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291108
	<b>NABL ULR No.</b> :TC592623000014678F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

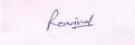
Flue Gas Temperature, °C,Avg.	: 115
Flue Gas Velocity(m/s),Avg.	: 22.25
Volumetric Flow Rate(Nm <sup>3</sup> /hr.)	: 2634287.27
Ambient Air Temperature, °C	: 20

S.No.	Parameters	Instrument	Method	Specification	Result
<b>Discipline : Chemical</b>					
<b>Group : Atmospheric Pollution</b>					
<b>1.</b>	<b>General Parameters</b>				
a.	Particulate Matter, mg/Nm <sup>3</sup> (Corrected to 6% O <sub>2</sub> on dry basis)	Gravimetric	IS:11255(P-1)	Max. 50	42.19
b.	Sulphur Dioxide (SO <sub>2</sub> ), mg/Nm <sup>3</sup> (Corrected to 6% O <sub>2</sub> on dry basis)	Titration	IS:11255(P-2)	Max. 200	1090.43
c.	Oxides of Nitrogen (NO <sub>x</sub> ), mg/Nm <sup>3</sup> (Corrected to 6% O <sub>2</sub> on dry basis)	UV-Spectrophotometer	IS:11255(P-7)	Max. 450	291.02
d.	Mercury(As Hg),mg/Nm <sup>3</sup>	ICPOES	USEPA Method	Max. 0.03	BLQ(LOQ:0.01)
e.	Carbon Monoxide(CO),% v/v	Orsat Apparatus	IS:13270	Max. 1.0	0.2
f.	Carbon Dioxide (CO <sub>2</sub> ), %	Orsat Apparatus	IS:13270	Not Specified	10.8

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirements as per EPA ACT 1986/PCLS/02/2021, Sample Collected by lab rep. on dated 20-12-2023, Sampling Procedure : SOP/ITC/EW/056.

**REMARKS :**N/A

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

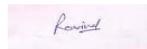
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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312250934 <b>Sample Reg. Date</b> :25-12-2023 <b>Report Date</b> :29-12-2023 <b>Report No.</b> :ICE-2312291108 <b>NABL ULR No.</b> :TC592623000014678F <b>Customer Ref. No.:</b> PO <b>Letter Dated</b> :25.11.2022
---	--

\*\*\*\*\*End Of Report\*\*\*\*\*



Ravinder Kumar  
29-12-2023  
Reviewer



29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

**Report No. :** ICE-2404090230

**ULR No. :** TC592624000006180F

**ORIGINAL**  
Page 1 of 2



**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403190724

Sample Name : Stack Boiler

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 1 Thimble, 30ml, 25ml

Packaging Mode : Packed in vials

Batch No./QR Code : Date of Sampling: 13.03.2024, Boiler Unit-1

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC Lab /Anand Kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 13.03.2024, Boiler Unit-1

Test Report as per : EPA-1986, PCLS/02/2021

Received On : 19-03-2024

Commenced On : 19-03-2024

Completed On : 06-04-2024

Date of Report : 09-04-2024

Grade : NA

Date of Expiry : NA

**S. No. Sampling Information:**

- (a) Name of the emission source monitored : Stack Emission of Boiler  
 (b) Rated Capacity : 2322 Ton  
 (c) Capacity on sampling day : -do-  
 (d) Type of fuel used & its consumption : Coal  
 (e) Normal operating schedule : 24 hrs  
 (f) Stack Identification : Stack attached to Boiler (Unit-1)  
 (g) Type of Stack/Duct : Metal  
 (h) Stack Height from Ground Level , m : 275  
 (i) Diameter of the Stack , cm : 750  
 (j) Sampling Duration , minutes : 48  
 (k) Purpose of Monitoring : For Self Monitoring  
 (l) Air Pollution control measure : ESPs  
 (m) Status : Working  
 (n) Recovery of Material : -  
 (o) Fugitive Emission, if any : Nil  
 (p) Date of Monitoring : 13-03-2024  
 (q) Time of Monitoring : 16:05 to 17:53 hrs`

**Observations:**

- (r) Flue Gas Temperature , °C Avg. : 118  
 (s) Flue Gas Velocity , m/s Avg. : 22.46  
 (t) Volumetric Flow Rate , Nm3/hr. : 2610104.40  
 (u) Ambient Air Temperature , °C : 27

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
	<b>Discipline : Chemical</b>					
	<b>Group : Atmospheric Pollution</b>					



09/04/2024

**Vikrant Saini**

Verified by



09/04/2024

**Prem Kumar**

Authorised by

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## Test Report

Report No. : ICE-2404090230

ULR No. : TC592624000006180F



TC-5926

**ORIGINAL**  
Page 2 of 2



(I)	General Parameters					
1	Carbon Monoxide(CO)	% v/v	Orsat Apparatus	IS:13270	0.2	Max. 1.0
2	Mercury(as Hg)	mg/Nm3	ICPOES	USEPA Method	BLQ(LOQ:0.01)	Max. 0.03
3	Carbon Dioxide (CO2)	%	Orsat Apparatus	IS:13270	11.6	Not Specified
4	Particulate Matter(Corrected to 6% O2 on dry basis)	mg/Nm3	Gravimetric	IS:11255(P-1)	45.26	Max. 50
5	Sulphur Dioxide(SO2)(Corrected to 6% O2 on dry basis)	mg/Nm3	Titration	IS:11255(P-2)	932.84	Max. 200
6	Oxides of Nitrogen (NOx)(Corrected to 6% O2 on dry basis)	mg/Nm3	UV-Spectrophotometer	IS:11255(P-7)	256.25	Max. 450

**NOTE** : NA- Not Applicable. BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per EPA-1986, PCLS/02/2021. Sampling Procedure: SOP/ITC/EW/056. Sample Collected by lab rep. on 13-03-2024.

**REMARKS** : See Note

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



09/04/2024

**Vikrant Saini**

Verified by



09/04/2024

**Prem Kumar**

Authorised by

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## Test Report

**Report No. :** ICE-2404090229

**ULR No. :** TC592624000006179F



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403190725

Sample Name : Stack Boiler

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 1 Thimble, 30ml, 25ml

Packaging Mode : Packed in vials

Batch No./QR Code : Date of Sampling: 13.03.2024, Boiler Unit-2

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC Lab /Anand Kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 13.03.2024, Boiler Unit-2

Test Report as per : EPA-1986, PCLS/02/2021

Received On : 19-03-2024

Commenced On : 19-03-2024

Completed On : 06-04-2024

Date of Report : 09-04-2024

Grade : NA

Date of Expiry : NA

### S. No. Sampling Information:

- (a) Name of the emission source monitored : Stack Emission of Boiler  
(b) Rated Capacity : 2322 Ton  
(c) Capacity on sampling day : -do-  
(d) Type of fuel used & its consumption : Coal  
(e) Normal operating schedule : 24 hrs  
(f) Stack Identification : Stack attached to Boiler (Unit-2)  
(g) Type of Stack/Duct : Metal  
(h) Stack Height from Ground Level , m : 275  
(i) Diameter of the Stack , cm : 750  
(j) Sampling Duration , minutes : 48  
(k) Purpose of Monitoring : For Self Monitoring  
(l) Air Pollution control measure : ESPs  
(m) Status : Working  
(n) Recovery of Material : -  
(o) Fugitive Emission, if any : Nil  
(p) Date of Monitoring : 13-03-2024  
(q) Time of Monitoring : 16:55 to 17:43 hrs

#### Observations:

- (r) Flue Gas Temperature , °C Avg. : 122  
(s) Flue Gas Velocity , m/s Avg. : 22.27  
(t) Volumetric Flow Rate , Nm<sup>3</sup>/hr. : 2561816.43  
(u) Ambient Air Temperature , °C : 27

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
	<b>Discipline : Chemical</b>					
	<b>Group : Atmospheric Pollution</b>					



09/04/2024

**Vikrant Saini**

Verified by



09/04/2024

**Prem Kumar**

Authorised by

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## Test Report

Report No. : ICE-2404090229

ULR No. : TC592624000006179F



TC-5926

**ORIGINAL**  
Page 2 of 2



(I)	General Parameters					
1	Carbon Monoxide(CO)	% v/v	Orsat Apparatus	IS:13270	0.2	Max. 1.0
2	Mercury(as Hg)	mg/Nm <sup>3</sup>	ICPOES	USEPA Method	BLQ(LOQ:0.01)	Max. 0.03
3	Carbon Dioxide (CO <sub>2</sub> )	%	Orsat Apparatus	IS:13270	12.2	Not Specified
4	Particulate Matter(Corrected to 6% O <sub>2</sub> on dry basis)	mg/Nm <sup>3</sup>	Gravimetric	IS:11255(P-1)	47.48	Max. 50
5	Sulphur Dioxide(SO <sub>2</sub> )(Corrected to 6% O <sub>2</sub> on dry basis)	mg/Nm <sup>3</sup>	Titration	IS:11255(P-2)	1244.69	Max. 200
6	Oxides of Nitrogen (NO <sub>x</sub> )(Corrected to 6% O <sub>2</sub> on dry basis)	mg/Nm <sup>3</sup>	UV-Spectrophotometer	IS:11255(P-7)	228.26	Max. 450

**NOTE :** NA- Not Applicable. BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per EPA-1986, PCLS/02/2021. Sampling Procedure: SOP/ITC/EW/056. Sample Collected by lab rep. on 13-03-2024.

**REMARKS :** See Note

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



09/04/2024

**Vikrant Saini**

Verified by



09/04/2024

**Prem Kumar**

Authorised by

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**PUNJAB POLLUTION CONTROL BOARD**  
**AIR LABORATORY, HEAD OFFICE, VATAVARAN BHAWAN, PATIALA**



Email : [ppcbairlab@gmail.com](mailto:ppcbairlab@gmail.com)

*File it  
RK*

- |  |  |
|--|--|
| 1. Laboratory Sample No.                 | 768-769/H.O.Lab./Air/Monitoring/2023-24                                |
| 2. Name of Industry                      | M/s Nabha Power Ltd, Village Nalas, Tehsil Rajpura, Distt. Patiala.    |
| 3. Name of Sample collecting Officer     | Er. Mohit Singla, AEE, Er. Harmanjeet Singh JEE & Dr. Rupinder Kaur SA |
| 4. Designation of authorizing Test       | Environmental Engineer, Regional Office Patiala                        |
| 5. Type of Sample                        | Stack Emission   |
| 6. Date & Time of Sample collection      | 28.03.2024   |
| 7. Date & Time of Sample receipt in Lab. | 1.04.2024  |
| 8. Point of Sample collection            | Details as given below   |

*म:ब:दि:- 1/2/3/5  
नवी डाक  
12/4/24  
दि: 1/4/2024  
1477  
12/4/24*

**RESULTS**

S.No.	Point of Sample Collection	Parameter	Results	Prescribed Standard
1.	From port hole on stack after APCD (Unit I - 700 MW 2322 TPH)	Particulate Matter (mg/Nm <sup>3</sup> )	42	50
2.	From port hole on stack after APCD (Unit II - 700 MW 2322 TPH)	Particulate Matter (mg/Nm <sup>3</sup> )	37	50

Note:- If any, other limits/specific standard has been prescribed time to time by MoEF&CC, CPCB and PPCB then those limits/specific standard would prevail subject to clarification from the concerned Regional Office.

Analysed by

*June*  
*5/4/24*  
Scientific Officer  
(Air Lab)

Endst. No:

*9181-82*

Dt.

*05/4/24*

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

1. The Senior Environmental Engineer, Punjab Pollution Control Board, Zonal Office-I, Patiala
2. The Environmental Engineer, Punjab Pollution Control Board, Regional Office, Patiala

*June*  
*5/4/24*  
Asstt. Scientific Officer  
(Air Lab)

## Annexure-2

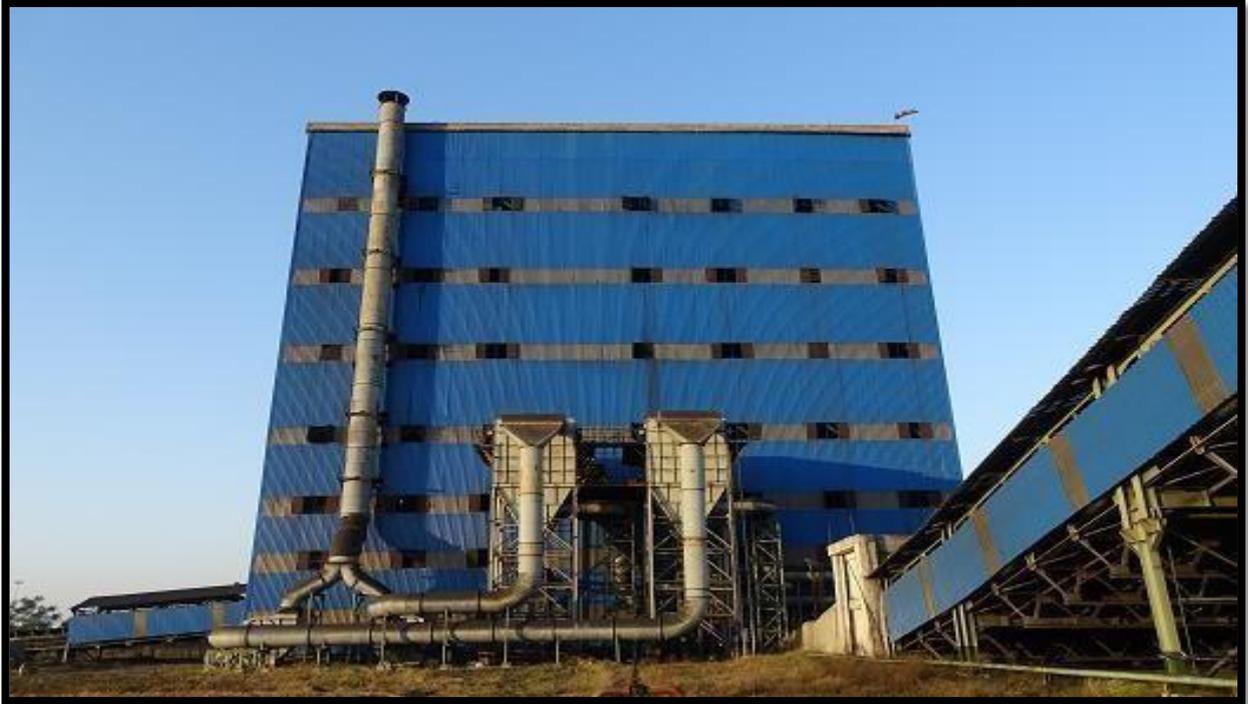


**Continuous emission monitoring system installed at main stack for measurement of Particulate Matter & Gaseous Emissions.**

## **Annexure- 3**

### **Measures taken to control fugitive emissions**

### Annexure-3



**Dust Extraction System at Crusher House**



**Dust Extraction System at Bunker**

## Annexure-3

### 1. Measures taken to control fugitive emissions during coal handling



**Covered conveyors for transfer of coal from Wagon tippler to coal bunkers for abatement of fugitive emissions**



**Dust suppression (sprinkler system) provided at each coal stockpile to arrest Dust**



**Automated and Mechanized Coal handling System to minimize manual operations**



**Three side covered windscreen to control fugitive emissions due to wind flow**

## Annexure-3



**Dust Suppression System installed at Wagon Tippler Area to control Fugitive Emission During Unloading of Coal.**

# **Annexure-4**

## **Fly Ash Utilization Report**

**NPL 2x700MW, RAJPURA,  
ASH GENERATION AND UTILIZATION REPORT FY 2023-24**

<b>Month</b>	<b>Total Ash Generated</b>	<b>Total Ash Utilized</b>	<b>% Utilization</b>
Apr-23	2,06,757	1,98,450	95.98%
May-23	2,05,507	2,00,819	97.72%
Jun-23	2,09,592	2,23,831	106.79%
Jul-23	1,79,735	1,66,386	92.57%
Aug-23	2,24,425	1,96,265	87.45%
Sep-23	1,98,004	2,31,008	116.67%
Oct-23	2,65,747	2,60,418	97.99%
Nov-23	2,11,706	2,23,289	105.47%
Dec-23	2,11,246	2,13,746	101.18%
Jan-24	2,69,637	2,61,093	96.83%
Feb-24	2,15,673	2,22,673	103.25%
Mar-24	2,72,366	2,75,034	100.98%
<b>Total</b>	<b>26,70,395</b>	<b>26,73,012</b>	<b>100.10%</b>

## **Annexure-5**

# **Heavy Metal Analysis in Fly Ash & Bottom Ash Report**



<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura, 140401 Punjab, India	<b>Sample Reg. No.</b> : B01-2403150004 <b>Sample Reg. Date.</b> : 15/03/2024 <b>Report Date.</b> : 20/03/2024 <b>Report No.</b> : ICB-2403200069 <b>Customer Ref. No.</b> : PO <b>Letter Dated</b> : 25/11/2022
--	---

Sample Particulars	
<b>Name of Sample<sup>#</sup></b> : Fly Ash	
<b>Submitted By<sup>#</sup></b> : Nabha Power Limited	
<b>Batch No.<sup>#</sup></b> : NA	<b>Batch Size<sup>#</sup></b> : NA
<b>Manufactured By<sup>#</sup></b> : NA	<b>Mfg. Lic. No.<sup>#</sup></b> : NA
<b>Supplied By<sup>#</sup></b> : Not Specified	
<b>Date of Manufacture<sup>#</sup></b> : NA	<b>Date of Expiry<sup>#</sup></b> : NA
<b>Sample Qty<sup>#</sup></b> : 500gm	<b>Sample Condition</b> : Good
<b>Grade<sup>#</sup></b> : NA	<b>Brand Name<sup>#</sup></b> : NA
<b>Official Seal</b> : Not Applicable	<b>Official Signature</b> : Not Applicable
<b>Packaging Details</b> : Packed in poly pack	<b>Declared values(if any)</b> : Not Specified
<b>Any Other Information</b> : Sample collected by Lab rep. on 12.03.2024	
<b>Test Report as per</b> : Party Specification	<b>With Amendent No.(s)</b> : Not Specified

Test Results						
<b>Analysis started on</b> : 18/03/2024		<b>Analysis completed on</b> : 19/03/2024				
<b>Description</b> : Fly Ash Sample						
S. No.	Parameter	Unit	Instrument	Method	Requirements	Result
<b>Discipline : Chemical</b>						
<b>Group : Building Material</b>						
<b>1</b>	<b>Heavy Metals</b>					
(a)	Arsenic(as As)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	6.75
(b)	Lead(as Pb)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	7.24
(c)	Chromium(as Cr)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	3.62
(d)	Mercury(as Hg)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	BLQ(LOQ :1.0)

# represents Customer Defined Fields

**Remarks:** Party asked for the above tests only.

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

20/03/2024  
Brijesh Singh  
Verified by

20/03/2024  
Kamal Grover  
Authorised by

**Interstellar Testing Centre PVT. LTD.**

86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)  
Panchkula-134109 (Haryana)  
Phone : (O) 0172-2561543, 2565825  
Email : customersupport@itclabs.com  
Visit us : www.itclabs.com

**Disclaimer :**

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<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura, 140401 Punjab, India	<b>Sample Reg. No.</b> : B01-2403150005 <b>Sample Reg. Date.</b> : 15/03/2024 <b>Report Date.</b> : 20/03/2024 <b>Report No.</b> : ICB-2403200070 <b>Customer Ref. No.</b> : PO <b>Letter Dated</b> : 25/11/2022
--	---

Sample Particulars	
<b>Name of Sample<sup>#</sup></b> : Bottom Ash	
<b>Submitted By<sup>#</sup></b> : Nabha Power Limited	
<b>Batch No.<sup>#</sup></b> : NA	<b>Batch Size<sup>#</sup></b> : NA
<b>Manufactured By<sup>#</sup></b> : NA	<b>Mfg. Lic. No.<sup>#</sup></b> : NA
<b>Supplied By<sup>#</sup></b> : Not Specified	
<b>Date of Manufacture<sup>#</sup></b> : NA	<b>Date of Expiry<sup>#</sup></b> : NA
<b>Sample Qty<sup>#</sup></b> : 500gm	<b>Sample Condition</b> : Good
<b>Grade<sup>#</sup></b> : NA	<b>Brand Name<sup>#</sup></b> : NA
<b>Official Seal</b> : Not Applicable	<b>Official Signature</b> : Not Applicable
<b>Packaging Details</b> : Packed in poly pack	<b>Declared values(if any)</b> : Not Specified
<b>Any Other Information</b> : Sample collected by Lab rep. on 12.03.2024	
<b>Test Report as per</b> : Party Specification	<b>With Amendent No.(s)</b> : Not Specified

Test Results						
<b>Analysis started on</b> : 18/03/2024		<b>Analysis completed on</b> : 19/03/2024				
<b>Description</b> : Bottom Ash Sample						
S. No.	Parameter	Unit	Instrument	Method	Requirements	Result
<b>Discipline : Chemical</b>						
<b>Group : Bio Mass &amp; Fuel</b>						
<b>1</b>	<b>Heavy Metals</b>					
(a)	Arsenic(as As)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	2.19
(b)	Lead(as Pb)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	1.05
(c)	Chromium(as Cr)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	1.90
(d)	Mercury(as Hg)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	BLQ(LOQ :1.0)

# represents Customer Defined Fields

**Remarks:** Party asked for the above tests only.

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

20/03/2024  
Brijesh Singh  
Verified by

20/03/2024  
Kamal Grover  
Authorised by

**Interstellar Testing Centre PVT. LTD.**

86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)  
Panchkula-134109 (Haryana)  
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# **Annexure-6**

## **Treated Sewage Monitoring Results**

## Test Report

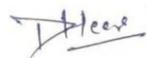
Document QF : 2501  
Page 1 of 3

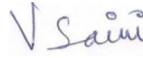
<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312190655 <b>Sample Reg. Date</b> :19-12-2023 <b>Report Date</b> :27-12-2023 <b>Report No.</b> :ICE-2312270907 <b>NABL ULR No.</b> :TC592623000014559F <b>Customer Ref. No.:</b> PO <b>Letter Dated</b> :25-11-2022
---	--

<b>Test Report as per IS:</b> EPA-1986, PCLS/02/2021	<b>With Amendment No.(s):</b>
--	-------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample#	STP Outlet Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number#	NA
h)	D.O.M#	NA
i)	Date of Expiry#	NA
j)	Sample Quantity#	2 Ltr
k)	Batch Size/Location#	NA
l)	Mode of Packing	Packed in Cans
m)	Date of Receipt	19-12-2023
n)	Date of Start	19-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 18-12-2023

  
 27-12-2023  
**Deepika Heera**  
 [Authorized Signatory]

  
 Vikrant  
 27-12-2023  
 Reviewer

  
 27-12-2023  
**PremKumar**  
 [Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312190655 <b>Sample Reg. Date</b> :19-12-2023 <b>Report Date</b> :27-12-2023 <b>Report No.</b> :ICE-2312270907 <b>NABL ULR No.</b> :TC592623000014559F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25-11-2022
---	--

s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )
t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLIMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description					
Description		STP Outlet Water			
S.No.	Parameters	Instrument	Method	Specification	Result
<b>Discipline : Chemical</b>					
<b>Group : Pollution &amp; Environment</b>					
<b>1. General Parameters</b>					
a.	Colour	Visual	IS 3025 (Part 4) : 2021	Not Specified	Colourless
b.	pH Value	pH Meter	IS: 3025 (Part-11): 2022	6.5-9	7.06
c.	Total Suspended Solids,(mg/L)	Gravimetric	IS: 3025 (P-17): 2022	Max. 100	10
d.	Chemical Oxygen Demand(mg/L)	COD Reflux Assembly	IS: 3025 (P-58): 2006 (RA 2022)	Not Specified	60
e.	Bio-chemical Oxygen Demand, mg/L (3 days at 27°C)	BOD Incubator	IS 3025 (Part 44) : 2019	Max. 30	15

  
 27-12-2023  
 Deepika Heera  
 [Authorized Signatory]

  
 Vikrant  
 27-12-2023  
 Reviewer

  
 27-12-2023  
 PremKumar  
 [Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 3 of 3

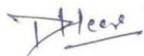
<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura		<b>Sample Reg. No.</b> :E01-2312190655 <b>Sample Reg. Date</b> :19-12-2023 <b>Report Date</b> :27-12-2023 <b>Report No.</b> :ICE-2312270907 <b>NABL ULR No.</b> :TC592623000014559F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25-11-2022			
f.	Total Kjeldahl Nitrogen as N (mg/L)	Titration	IS 3025 (Part 34) : 2019	Not Specified	4.2
g.	Total Phosphorous as P (mg/L)	UV- Spectrophotometer	APHA 23rd Edition 4500 - P D: 2017	Not Specified	1.91
<b>Discipline : Biological</b>					
<b>Group : Pollution &amp; Environment</b>					
<b>1. Microbiological Tests</b>					
a.	Faecal Coliform	Microbiological	APHA 23rd Edition Chapter 9 9221.E	Max. 1000 MPN/100ml	350 MPN/100ml

#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, Requirement as per EPA-1986, PCLS/02/2021. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** N/A

\*\*\*\*\*End Of Report\*\*\*\*\*

  
27-12-2023  
Deepika Heera  
[Authorized Signatory]

  
Vikrant  
27-12-2023  
Reviewer

  
27-12-2023  
PremKumar  
[Authorized Signatory]

**Interstellar Testing Centre Pvt. Ltd.**  
86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)  
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## Test Report

Report No. : ICE-2404020090

ULR No. : TC592624000005904F

**ORIGINAL**  
Page 1 of 2



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403130523

Sample Name : STP Outlet Water

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 Ltr

Packaging Mode : Packed in cans

Batch No./QR Code : NA

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on 12.03.2024

Test Report as per : EPA-1986, PCLS/02/2021

Received On : 13-03-2024

Commenced On : 13-03-2024

Completed On : 20-03-2024

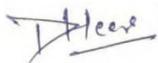
Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

#### Description: STP Outlet Water

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Pollution &amp; Environment</b>						
<b>(I) General Parameters</b>						
1	pH Value	NA	pH Meter	IS: 3025 (Part-11): 2022	7.13	6.5 - 9
2	Total Suspended Solids	mg/l	Gravimetric	IS: 3025 (P-17): 2022	6	Max. 100
3	Chemical Oxygen Demand	mg/l	COD Reflux Assembly	IS: 3025 (P-58): 2006 (RA 2022)	25	Not Specified
4	Bio-chemical Oxygen Demand,(3 days at 27°C)	mg/l	BOD Incubator	IS 3025 (Part 44) : 2019	6	Max. 30
5	Colour	NA	Visual Examination	IS 3025 (Part 4) : 2021	Colourless	Not Specified
6	Total Kjeldahl Nitrogen(as N)	mg/l	Titration	IS 3025 (Part 34): 2019	5.6	Max. 100
7	Total Phosphorous(as P)	mg/l	UV-Spectrophotometer	APHA 23rd Edition 4500 - P D: 2017	1.81	Not Specified
<b>Discipline : Biological</b>						
<b>Group : Pollution &amp; Environment</b>						
<b>(II) Microbiological Tests</b>						
1	Faecal Coliform	NA	Microbiological	APHA 23rd Edition Chapter 9 9221.E	540 MPN/100ml	Max. 1000 MPN/100ml



02/04/2024  
**Deepika Heera**  
Authorized Signatory(Microbiology)



02/04/2024  
**Vikrant Saini**  
Verified by



02/04/2024  
**Prem Kumar**  
Authorised by

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## Test Report

Report No. : ICE-2404020090

ULR No. : TC592624000005904F



TC-5926

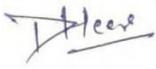
**ORIGINAL**  
Page 2 of 2



**NOTE** : NA- Not Applicable. Requirement as per EPA-1986, PCLS/02/2021. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS** : See Note

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



02/04/2024  
**Deepika Heera**  
Authorized Signatory(Microbiology)



02/04/2024  
**Vikrant Saini**  
Verified by



02/04/2024  
**Prem Kumar**  
Authorised by

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File it  
RK

म:स:वि:-1/2/3/S.A.  
नवीं डाक  
22/11/2023  
3840  
22/11/23  
2023 Oct

PUNJAB POLLUTION CONTROL BOARD VATAVARAN BHAVAN,  
NABHA ROAD, PATIALA  
WATER ANALYSIS REPORT

- Laboratory Sample No. E-4340-4346/ H.O.Lab. Monitoring/2023
- Name of Industry M/s NPL Pvt. Ltd, Rajpura Patiala
- Name of Sample collecting Officer Er. Lavneet Kumar Dubey, SEE, Er. Rohit Singla, EE, Er. Navtresh Singla, EE & Er. Mohit Singla, AEE
- Designation of the officer authorizing Test Environmental Engineer, Regional Office, Patiala
- Type of Sample Grab
- Date & Time of Sample collection 01.11.2023
- Date & Time of Sample receipt in Lab. 02.11.2023
- Period of Analysis 02.11.2023 to 14.11.2023
- Test Methods As per relevant parts of IS:3025/IS:1622 & Methods of APHA

Results

Sr. No.	Parameters	Inlet of STP-1	Outlet of STP-1	Aeration Tank-1	Inlet of STP-2	Outlet of STP-2	Cooling Tower Blowdown Storage Tank	Ash Pond Settling Tank
1	pH	7.4	7.6	-	7.2	8.4	-	8.3
2	Total Suspended Solids mg/l	45	13	-	93	15	-	13
3	Total Dissolved Solids mg/l	520	485	-	855	535	-	-
4	Chemical Oxygen Demand mg/l	148	40	-	173	48	-	-
5	Bio-chemical Oxygen Demand mg/l	59	9	-	72	11	-	-
6	Oil & Grease mg/l	6.8	BDL	-	8.8	BDL	-	BDL
7	Zinc mg/l	-	-	-	-	-	BDL	-
8	Total Chrome mg/l	-	-	-	-	-	BDL	-
9	Phosphate mg/l	-	-	-	-	-	1.6	-
10	Mixed Liquid Suspended Solids mg/l	-	-	780	-	-	-	-
11	Mixed Liquid Volatile Suspended Solids mg/l	-	-	420	-	-	-	-

Remarks: No specific prescribed standards are as per EPA. However, if any stringent/other standards have been imposed by the Board, the same shall prevail.  
Note: 1. BDL means Below Method Detection Limit.  
2. OCIM & Free Chlorine: Facility not available.

---End of Report---

Scientific Officer  
20/11/23

Endst. No: 28764-66

Dt. 21/11/2023

A copy of the above is forwarded to the:-

- The Chief Environment Engineer, Punjab Pollution Control Board, Ludhiana/Patiala.
- The Senior Environment Engineer, Punjab Pollution Control Board, Zonal Office-I, Patiala.
- The Environment Engineer, Punjab Pollution Control Board, Regional Office, Patiala.

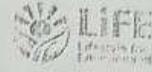
Asstt. Scientific Officer  
20/11/23

*File it*  
*RK*

20/3/24

**PUNJAB POLLUTION CONTROL BOARD VATAVARAN BHAVAN,  
NABHA ROAD, PATIALA**

**WATER ANALYSIS REPORT**



- |  |  |
|--|--|
| 1. Laboratory Sample No.                       | E-5458-5463/H.O.Lab. Monitoring/2024                                     |
| 2. Name of Industry                            | M/s NPL Pvt. Ltd, Rajpura Patiala  |
| 3. Name of Sample collecting Officer           | Er. Mohit Singla, AEE, Er. Harmanjeet Singh, JEE & Dr. Rupinder Kaur, SA |
| 4. Designation of the officer authorizing Test | Environmental Engineer, Regional Office, Patiala                         |
| 5. Type of Sample                              | Grab   |
| 6. Date & Time of Sample collection            | 28.03.2024   |
| 7. Date & Time of Sample receipt in Lab.       | 29.03.2024   |
| 8. Period of Analysis                          | 29.03.2024 to 09.04.2024   |
| 9. Test Methods                                | As per relevant parts of IS:3025/IS:1622 & Methods of APHA               |

*म. क. सि. 01/23/IS/1*  
*नवी डाक*  
*1476*  
*12/04/24*  
*12/4/24*

**Results**

Sr. No.	Parameters	Inlet of STP-1	Outlet of STP-1	Inlet of STP-2	Outlet of STP-2	Cooling Tower Blowdown	Ash settling Pond
1	pH	7.0	7.2	7.1	7.8	-	7.4
2	Total Suspended Solids mg/l	138	33	326	29	-	32
3	Total Dissolved Solids mg/l	493	515	640	442	-	-
4	Chemical Oxygen Demand mg/l	249	48	307	42	-	-
5	Bio-chemical Oxygen Demand mg/l	125	13	139	10	-	-
6	Oil & Grease mg/l	10.6	BDL	11.4	BDL	-	BDL
7	Zinc mg/l	-	-	-	-	BDL	-
8	Total Chrome mg/l	-	-	-	-	BDL	-
9	Phosphate mg/l	-	-	-	-	0.75	-

Remarks: No specific prescribed standards are as per EPA. However, if any stringent/other standards have been imposed by the Board, the same shall prevail.

- Note: 1. BDL means Below Method Detection Limit.  
2. OCIM & Free Chlorine: Facility not available.

---End of Report---

*mit*  
Scientific Officer  
*10/4/24*

Endst. No: *9475-77*

Dt. *10/4/24*

A copy of the above is forwarded to the: -

1. The Chief Environment Engineer, Punjab Pollution Control Board, Ludhiana.
2. The Senior Environment Engineer, Punjab Pollution Control Board, Zonal Office-I, Patiala.
3. The Environment Engineer, Punjab Pollution Control Board, Regional Office, Patiala.

*mit*  
Asstt. Scientific Officer  
*10/4/24*

*pa*  
*10/4/24*

# **Annexure-7**

## **Ground Water Quality Monitoring Results**

## Test Report

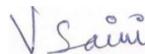
Document QF : 2501  
Page 1 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210796 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281050 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample #	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number #	NA
h)	D.O.M #	NA
i)	Date of Expiry #	NA
j)	Sample Quantity #	2x1 Ltr
k)	Batch Size/Location #	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-1
s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )

  
 Vikrant  
 28-12-2023  
 Reviewer

  
 28-12-2023  
 PremKumar  
 [Authorized Signatory]

#### Disclaimer :

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- Legal disputes are subjected to Panchkula Jurisdiction only.

## Test Report

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Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210796 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281050 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLEMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description			Liquid Sample with Suspended particles			
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1.</b>	<b>General Parameters</b>					
a.	Total Suspended Solids,(mg/L)	Gravimetric	IS:3025(Part 17)		Not Specified	3
b.	Chemical Oxygen Demand(mg/L)	COD Reflux Assembly	IS 3025 (Part: 58): 2006		Not Specified	BLQ(LOQ:4.0)
c.	Bio-chemical Oxygen Demand, mg/L (3 days at 27°C)	BOD Incubator	IS 3025 (Part 44) : 2019		Not Specified	BLQ(LOQ:1.0)

#' represents Customer Defined Fields

**NOTE** : NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS** :N/A

*V Saini*

Vikrant  
28-12-2023  
Reviewer

*PremKumar*

28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

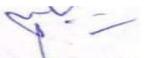
Document QF : 2501  
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\*\*\*\*\*End Of Report\*\*\*\*\*



Vikrant  
28-12-2023  
Reviewer



28-12-2023  
PremKumar  
[Authorized Signatory]

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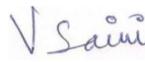
Document OF : 2501  
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---	--

Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample#	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number#	NA
h)	D.O.M#	NA
i)	Date of Expiry#	NA
j)	Sample Quantity#	2x1 Ltr
k)	Batch Size/Location#	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-1

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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---	--

s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )
t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLIMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description		Liquid Sample with Suspended particles				
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1. Organoleptic &amp; Physical Parameter</b>						
a.	pH Value	pH Meter	IS:3025 (Part - 11):1983(RA:2017 )	6.5-8.5	No relaxation	7.74
<b>2. Parameters Concerning Undesirable Substances in excess amount</b>						
a.	Total Hardness(as CaCO <sub>3</sub> ),(mg/L)	Titration	IS 3025 (Part 21)	200 Max.	600 Max.	92
<b>3. General Parameters</b>						
a.	Total Dissolved Solids (mg/L)	Gravimetric	IS:3025(P-16)	500 Max.	2000 Max.	487
<b>4. Parameters Concerning Toxic Substances</b>						

*V Saini*  
Vikrant  
28-12-2023  
Reviewer

*PremKumar*  
28-12-2023  
PremKumar  
[Authorized Signatory]

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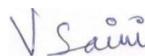
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---	---

Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample #	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number #	NA
h)	D.O.M #	NA
i)	Date of Expiry #	NA
j)	Sample Quantity #	2x1 Ltr
k)	Batch Size/Location #	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-2
s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )

  
 Vikrant  
 28-12-2023  
 Reviewer

  
 28-12-2023  
 PremKumar  
 [Authorized Signatory]

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---	---

t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLEMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description		Liquid Sample with Suspended particles				
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1.</b>	<b>General Parameters</b>					
a.	Total Suspended Solids,(mg/L)	Gravimetric	IS:3025(Part 17)		Not Specified	2
b.	Chemical Oxygen Demand(mg/L)	COD Reflux Assembly	IS 3025 (Part: 58): 2006		Not Specified	BLQ(LOQ:4.0)
c.	Bio-chemical Oxygen Demand, mg/L (3 days at 27°C)	BOD Incubator	IS 3025 (Part 44) : 2019		Not Specified	BLQ(LOQ:1.0)

#' represents Customer Defined Fields

**NOTE** : NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS** :N/A

*V Saini*

Vikrant  
28-12-2023  
Reviewer

*PremKumar*

28-12-2023  
PremKumar  
[Authorized Signatory]

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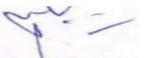
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---	---

\*\*\*\*\*End Of Report\*\*\*\*\*



Vikrant  
28-12-2023  
Reviewer



28-12-2023  
PremKumar  
[Authorized Signatory]

### Interstellar Testing Centre Pvt. Ltd.

86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)  
Panchkula-134109 (Haryana)  
Phone : (O) 0172-2561543, 2565825  
Email : customersupport@itclabs.com  
Visit us :www.itclabs.com

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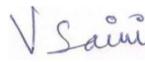
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Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample#	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number#	NA
h)	D.O.M#	NA
i)	Date of Expiry#	NA
j)	Sample Quantity#	2x1 Ltr
k)	Batch Size/Location#	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-2

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

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Page 2 of 3

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	s) Test Request Submitted By	
	t) Manufactured By#	
	u) Supplied By#	
	<b>PART B : SUPPLIMENTARY INFORMATIONS</b>	
	a. Reference to sampling procedure, whenever applicable : N/A b. Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any : N/A c. Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any : N/A	

s) Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )
t) Manufactured By#	NA
u) Supplied By#	NA

<b>PART B : SUPPLIMENTARY INFORMATIONS</b>	
a. Reference to sampling procedure, whenever applicable	: N/A
b. Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c. Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description		Liquid Sample with Suspended particles				
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1. Organoleptic &amp; Physical Parameter</b>						
a.	pH Value	pH Meter	IS:3025 (Part - 11):1983(RA:2017 )	6.5-8.5	No relaxation	7.68
<b>2. Parameters Concerning Undesirable Substances in excess amount</b>						
a.	Total Hardness(as CaCO <sub>3</sub> ),(mg/L)	Titration	IS 3025 (Part 21)	200 Max.	600 Max.	90
<b>3. General Parameters</b>						
a.	Total Dissolved Solids (mg/L)	Gravimetric	IS:3025(P-16)	500 Max.	2000 Max.	485
<b>4. Parameters Concerning Toxic Substances</b>						

*V Saini*  
Vikrant  
28-12-2023  
Reviewer

*PremKumar*  
28-12-2023  
PremKumar  
[Authorized Signatory]

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- Legal disputes are subjected to Panchkula Jurisdiction only.

## Test Report

Document QF : 2501  
Page 3 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura			<b>Sample Reg. No.</b> :E01-2312210797 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281049 (1) <b>NABL ULR No.</b> :TC592623000014610F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022			
a.	Lead(as Pb)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.01 Max.	No Relaxation	BLQ(LOQ:0.002)
b.	Mercury(as Hg)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.001 Max.	No Relaxation	BLQ(LOQ:0.001)
c.	Total Arsenic(as As)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.01 Max.	0.05 Max.	BLQ(LOQ:0.002)
d.	Total Chromium(as Cr)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.05 Max.	No Relaxation	BLQ(LOQ:0.002)

\*' represents categories/test parameters not covered under NABL '#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** N/A

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

### Disclaimer :

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## Test Report

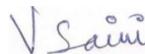
Document QF : 2501  
Page 1 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210798 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281048 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
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Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample #	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number #	NA
h)	D.O.M #	NA
i)	Date of Expiry #	NA
j)	Sample Quantity #	2x1 Ltr
k)	Batch Size/Location #	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-3
s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document QF : 2501  
Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210798 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281048 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLIMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description			Liquid Sample with Suspended particles			
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1.</b>	<b>General Parameters</b>					
a.	Total Suspended Solids,(mg/L)	Gravimetric	IS:3025(Part 17)		Not Specified	4
b.	Chemical Oxygen Demand(mg/L)	COD Reflux Assembly	IS 3025 (Part: 58): 2006		Not Specified	BLQ(LOQ:4.0)
c.	Bio-chemical Oxygen Demand, mg/L (3 days at 27°C)	BOD Incubator	IS 3025 (Part 44) : 2019		Not Specified	BLQ(LOQ:1.0)

#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** N/A

*V Saini*  
Vikrant  
28-12-2023  
Reviewer

*PremKumar*  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document QF : 2501  
Page 3 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210798 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281048 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

\*\*\*\*\*End Of Report\*\*\*\*\*



Vikrant  
28-12-2023  
Reviewer



28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

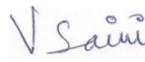
Document OF : 2501  
Page 1 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210798 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281048 (1) <b>NABL ULR No.</b> :TC592623000014621F <b>Customer Ref. No.:</b> PO <b>Letter Dated</b> :25.11.2022
---	--

Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample#	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number#	NA
h)	D.O.M#	NA
i)	Date of Expiry#	NA
j)	Sample Quantity#	2x1 Ltr
k)	Batch Size/Location#	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-3

  
 Vikrant  
 28-12-2023  
 Reviewer

  
 28-12-2023  
 PremKumar  
 [Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210798 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281048 (1) <b>NABL ULR No.</b> :TC592623000014621F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	--

s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )
t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLIMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description		Liquid Sample with Suspended particles				
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1. Organoleptic &amp; Physical Parameter</b>						
a.	pH Value	pH Meter	IS:3025 (Part - 11):1983(RA:2017 )	6.5-8.5	No relaxation	7.83
<b>2. Parameters Concerning Undesirable Substances in excess amount</b>						
a.	Total Hardness(as CaCO <sub>3</sub> ),(mg/L)	Titration	IS 3025 (Part 21)	200 Max.	600 Max.	96
<b>3. General Parameters</b>						
a.	Total Dissolved Solids (mg/L)	Gravimetric	IS:3025(P-16)	500 Max.	2000 Max.	497
<b>4. Parameters Concerning Toxic Substances</b>						

*V Saini*  
Vikrant  
28-12-2023  
Reviewer

*PremKumar*  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document ID : 2501  
Page 3 of 3

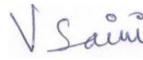
<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura			<b>Sample Reg. No.</b> :E01-2312210798 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281048 (1) <b>NABL ULR No.</b> :TC592623000014621F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022			
a.	Lead(as Pb)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.01 Max.	No Relaxation	BLQ(LOQ:0.002)
b.	Mercury(as Hg)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.001 Max.	No Relaxation	BLQ(LOQ:0.001)
c.	Total Arsenic(as As)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.01 Max.	0.05 Max.	BLQ(LOQ:0.002)
d.	Total Chromium(as Cr)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.05 Max.	No Relaxation	BLQ(LOQ:0.002)

\*' represents categories/test parameters not covered under NABL '#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** N/A

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

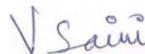
Document QF : 2501  
Page 1 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210799 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281047 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample #	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number #	NA
h)	D.O.M #	NA
i)	Date of Expiry #	NA
j)	Sample Quantity #	2x1 Ltr
k)	Batch Size/Location #	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-4
s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document QF : 2501  
Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210799 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281047 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLEMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description			Liquid Sample with Suspended particles			
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1.</b>	<b>General Parameters</b>					
a.	Total Suspended Solids,(mg/L)	Gravimetric	IS:3025(Part 17)		Not Specified	4
b.	Chemical Oxygen Demand(mg/L)	COD Reflux Assembly	IS 3025 (Part: 58): 2006		Not Specified	BLQ(LOQ:4.0)
c.	Bio-chemical Oxygen Demand, mg/L (3 days at 27°C)	BOD Incubator	IS 3025 (Part 44) : 2019		Not Specified	BLQ(LOQ:1.0)

#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** N/A

*V Saini*

Vikrant  
28-12-2023  
Reviewer

*PremKumar*

28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document QF : 2501  
Page 3 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210799 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281047 (2) <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	---

\*\*\*\*\*End Of Report\*\*\*\*\*



Vikrant  
28-12-2023  
Reviewer



28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

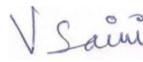
Document OF : 2501  
Page 1 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210799 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281047 (1) <b>NABL ULR No.</b> :TC592623000014623F <b>Customer Ref. No.:</b> PO <b>Letter Dated</b> :25.11.2022
---	--

Test Report as per IS:IS 10500 - 2012	With Amendment No.(s):01 to 04
---------------------------------------	--------------------------------

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample#	Ground Water
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number#	NA
h)	D.O.M#	NA
i)	Date of Expiry#	NA
j)	Sample Quantity#	2x1 Ltr
k)	Batch Size/Location#	NA
l)	Mode of Packing	Packed in cans
m)	Date of Receipt	21-12-2023
n)	Date of Start	21-12-2023
o)	Date of Completion	27-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 20.12.2023, Sample from Piezometer-4

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312210799 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281047 (1) <b>NABL ULR No.</b> :TC592623000014623F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022
---	--

s)	Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )
t)	Manufactured By#	NA
u)	Supplied By#	NA

### PART B : SUPPLIMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

Description						
Description		Liquid Sample with Suspended particles				
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>1. Organoleptic &amp; Physical Parameter</b>						
a.	pH Value	pH Meter	IS:3025 (Part - 11):1983(RA:2017 )	6.5-8.5	No relaxation	7.93
<b>2. Parameters Concerning Undesirable Substances in excess amount</b>						
a.	Total Hardness(as CaCO <sub>3</sub> ),(mg/L)	Titration	IS 3025 (Part 21)	200 Max.	600 Max.	97
<b>3. General Parameters</b>						
a.	Total Dissolved Solids (mg/L)	Gravimetric	IS:3025(P-16)	500 Max.	2000 Max.	495
<b>4. Parameters Concerning Toxic Substances</b>						

*V Saini*  
Vikrant  
28-12-2023  
Reviewer

*PremKumar*  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 3 of 3

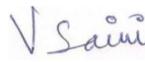
<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura			<b>Sample Reg. No.</b> :E01-2312210799 <b>Sample Reg. Date</b> :21-12-2023 <b>Report Date</b> :28-12-2023 <b>Report No.</b> :ICE-2312281047 (1) <b>NABL ULR No.</b> :TC592623000014623F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25.11.2022			
a.	Lead(as Pb)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.01 Max.	No Relaxation	BLQ(LOQ:0.002)
b.	Mercury(as Hg)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.001 Max.	No Relaxation	BLQ(LOQ:0.001)
c.	Total Arsenic(as As)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.01 Max.	0.05 Max.	BLQ(LOQ:0.002)
d.	Total Chromium(as Cr)(mg/L)	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	0.05 Max.	No Relaxation	BLQ(LOQ:0.002)

\*' represents categories/test parameters not covered under NABL '#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** N/A

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Vikrant  
28-12-2023  
Reviewer

  
28-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Report No. : ICE-2404020102 (1)

ULR No. : TC592624000005916F



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140541

Sample Name : Ground Water

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cans

Batch No./QR Code : Sample from Piezometer-1

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Jitesh on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

#### Description: Liquid With Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) Organoleptic &amp; Physical Parameter</b>						
1	pH Value	NA	pH Meter	IS: 3025 (Part-11): 2022	7.21	6.5-8.5 - No relaxation
2	Total Dissolved Solids	mg/l	Gravimetric	IS: 3025 (P-16)-1984 (RA 2017)	610	500 Max. - 2000 Max.
<b>(II) Parameters Concerning Undesirable Substances in excess amount</b>						
1	Total Hardness(as CaCO <sub>3</sub> )	mg/l	Titration	IS: 3025 (Part 21)-2009 (RA 2019)	132	200 Max. - 600 Max.
<b>(III) Parameters Concerning Toxic Substances</b>						
1	Lead(as Pb)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No Relaxation
2	Mercury(as Hg)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.001)	0.001 Max. - No Relaxation
3	Total Arsenic( as As)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No relaxation
4	Total Chromium(as Cr)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.05 Max. - No Relaxation

**NOTE** : NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS** : See Note

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



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

Authorised by

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#### Interstellar Testing Centre PVT. LTD.

86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)

Panchkula-134109 (Haryana)

Phone : (O) 0172-2561543, 2565825

Email : customersupport@itclabs.com

Visit us : www.itclabs.com



**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140541

Sample Name : Ground Water

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cans

Batch No./QR Code : Sample from Piezometer-1

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Jitesh on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

Description: Liquid With Suspended Particles						
S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) General Parameters</b>						
1	Total Suspended Solids	mg/l	Gravimetric	IS: 3025 (P-17)-1984 (RA 2017)	2	-
2	Chemical Oxygen Demand	mg/l	COD Reflux Assembly	IS 3025 (Part 58) : 2017	BLQ(LOQ:4.0)	Not Specified
3	Bio-chemical Oxygen Demand,(3 days at 27°C)	mg/l	BOD Incubator	IS 3025 (Part 44) : 2019	BLQ(LOQ:1.0)	Not Specified

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** See Note

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



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**Prem Kumar**

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## Test Report

**Report No. :** ICE-2404020097 (1)

**ULR No. :** TC592624000005911F



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140542

Sample Name : Ground Water

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cans

Batch No./QR Code : Sample from Piezometer-2

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Anand on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

**Description:** Liquid Sample with Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) Organoleptic &amp; Physical Parameter</b>						
1	pH Value	NA	pH Meter	IS: 3025 (Part-11): 2022	7.23	6.5-8.5 - No relaxation
2	Total Dissolved Solids	mg/l	Gravimetric	IS: 3025 (P-16)-1984 (RA 2017)	595	500 Max. - 2000 Max.
<b>(II) Parameters Concerning Undesirable Substances in excess amount</b>						
1	Total Hardness(as CaCO <sub>3</sub> )	mg/l	Titration	IS: 3025 (Part 21)-2009 (RA 2019)	136	200 Max. - 600 Max.
<b>(III) Parameters Concerning Toxic Substances</b>						
1	Lead(as Pb)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No Relaxation
2	Mercury(as Hg)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.001)	0.001 Max. - No Relaxation
3	Total Arsenic( as As)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No relaxation
4	Total Chromium(as Cr)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.05 Max. - No Relaxation

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** See Note

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



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

Authorised by

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## Test Report

Report No. : ICE-2404020097 (2)



**ORIGINAL**  
Page 1 of 1

**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140542

Sample Name : Ground Water

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cans

Batch No./QR Code : Sample from Piezometer-2

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Anand on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

**Description:** Liquid Sample with Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) General Parameters</b>						
1	Total Suspended Solids	mg/l	Gravimetric	IS: 3025 (P-17)-1984 (RA 2017)	3	-
2	Chemical Oxygen Demand	mg/l	COD Reflux Assembly	IS 3025 (Part 58) : 2017	BLQ(LOQ:4.0)	Not Specified
3	Bio-chemical Oxygen Demand,(3 days at 27°C)	mg/l	BOD Incubator	IS 3025 (Part 44) : 2019	BLQ(LOQ:1.0)	Not Specified

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** See Note

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



02/04/2024

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02/04/2024

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## Test Report

Report No. : ICE-2404020096 (1)

ULR No. : TC592624000005910F



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140543

Sample Name : Ground Water

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cans

Batch No./QR Code : Sample from Piezometer-3

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Anand on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

**Description:** Liquid Sample with Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) Organoleptic &amp; Physical Parameter</b>						
1	pH Value	NA	pH Meter	IS: 3025 (Part-11): 2022	7.12	6.5-8.5 - No relaxation
2	Total Dissolved Solids	mg/l	Gravimetric	IS: 3025 (P-16)-1984 (RA 2017)	618	500 Max. - 2000 Max.
<b>(II) Parameters Concerning Undesirable Substances in excess amount</b>						
1	Total Hardness(as CaCO <sub>3</sub> )	mg/l	Titration	IS: 3025 (Part 21)-2009 (RA 2019)	130	200 Max. - 600 Max.
<b>(III) Parameters Concerning Toxic Substances</b>						
1	Lead(as Pb)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No Relaxation
2	Mercury(as Hg)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.001)	0.001 Max. - No Relaxation
3	Total Arsenic( as As)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No relaxation
4	Total Chromium(as Cr)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.05 Max. - No Relaxation

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** See Note

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



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

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## Test Report

Report No. : ICE-2404020096 (2)



**ORIGINAL**  
Page 1 of 1

**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140543

Sample Name : Ground Water

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cans

Batch No./QR Code : Sample from Piezometer-3

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Anand on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

**Description:** Liquid Sample with Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) General Parameters</b>						
1	Total Suspended Solids	mg/l	Gravimetric	IS: 3025 (P-17)-1984 (RA 2017)	2	-
2	Chemical Oxygen Demand	mg/l	COD Reflux Assembly	IS 3025 (Part 58) : 2017	BLQ(LOQ:4.0)	Not Specified
3	Bio-chemical Oxygen Demand.(3 days at 27°C)	mg/l	BOD Incubator	IS 3025 (Part 44) : 2019	BLQ(LOQ:1.0)	Not Specified

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** See Note

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



02/04/2024

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## Test Report

Report No. : ICE-2404020095 (1)

ULR No. : TC592624000005909F



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140544

Sample Name : Ground Water

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cnas

Batch No./QR Code : Sample from Piezometer-4

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Jitesh on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

**Description:** Liquid with Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) Organoleptic &amp; Physical Parameter</b>						
1	pH Value	NA	pH Meter	IS: 3025 (Part-11): 2022	7.22	6.5-8.5 - No relaxation
2	Total Dissolved Solids	mg/l	Gravimetric	IS: 3025 (P-16)-1984 (RA 2017)	686	500 Max. - 2000 Max.
<b>(II) Parameters Concerning Undesirable Substances in excess amount</b>						
1	Total Hardness(as CaCO <sub>3</sub> )	mg/l	Titration	IS: 3025 (Part 21)-2009 (RA 2019)	126	200 Max. - 600 Max.
<b>(III) Parameters Concerning Toxic Substances</b>						
1	Lead(as Pb)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No Relaxation
2	Mercury(as Hg)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.001)	0.001 Max. - No Relaxation
3	Total Arsenic( as As)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.01 Max. - No relaxation
4	Total Chromium(as Cr)	mg/l	ICPMS	IS: 3025 (P-65)-2014 (RA 2019)	BLQ(LOQ : 0.002)	0.05 Max. - No Relaxation

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** The above sample complies to IS 10500 : 2012 drinking water specification with respect to the above tested Parameters

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



02/04/2024

Vikrant Saini

Verified by



02/04/2024

Prem Kumar

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## Test Report

Report No. : ICE-2404020095 (2)



**ORIGINAL**  
Page 1 of 1

**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403140544

Sample Name : Ground Water

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 2 Ltr

Packaging Mode : Packed in Cnas

Batch No./QR Code : Sample from Piezometer-4

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : NA

Any Other Information : Sample Collected by lab rep. Mr. Jitesh on 13-03-2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 14-03-2024

Commenced On : 14-03-2024

Completed On : 26-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

With Amendent No.(s) : 01 to 04

**Description:** Liquid with Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) General Parameters</b>						
1	Total Suspended Solids	mg/l	Gravimetric	IS: 3025 (P-17)-1984 (RA 2017)	4	-
2	Chemical Oxygen Demand	mg/l	COD Reflux Assembly	IS 3025 (Part 58) : 2017	BLQ(LOQ:4.0)	Not Specified
3	Bio-chemical Oxygen Demand,(3 days at 27°C)	mg/l	BOD Incubator	IS 3025 (Part 44) : 2019	BLQ(LOQ:1.0)	Not Specified

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :** The above sample complies to IS 10500 : 2012 drinking water specification with respect to the above tested Parameters

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



02/04/2024

**Vikrant Saini**

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02/04/2024

**Prem Kumar**

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filed  
RK

ਸ:ਵ:ਦਿ:-1/2/3/S.A  
ਨਵੀਂ ਡਾਕ  
ਰਮ  
12/04/2024  
18/1/24  
GW Report 2023

PUNJAB POLLUTION CONTROL BOARD VATAVARAN BHAVAN,  
NABHA ROAD, PATIALA  
GROUND WATER REPORT



1. Laboratory Sample No.
2. Name of Industry
3. Name of Sample collecting Officer
4. Designation of authorizing Test
5. Date & Time of Sample collection
6. Date & Time of Sample receipt in Lab.
7. Period of Analysis
8. Test Methods

GW-551-554/H.O.Lab./ G.W. Monitoring/2024  
M/s Nabha Power Ltd., Village, Nalas, Rajpura  
Er. Mohit Singla AEE  
EE, RO, Patiala.  
28.03.2024  
29.03.2024  
29.03.2024 to 09.04.2024  
As per relevant parts of IS:3025 &  
Methods of APHA

Results

Sr. no.	Parameters	Coal Handling Plant	Near Storm Water Sump	Along ash dykes	Ash dyke and water reservoir
1	pH	7.8	7.7	8.0	7.12
2	Total Suspended Solids mg/l	BDL	BDL	BDL	BDL
3	Total Dissolved Solids mg/l	343	393	345	813
4	Chemical Oxygen Demand mg/l	BDL	BDL	BDL	12
5	Bio-Chemical Oxygen Demand mg/l	BDL	BDL	BDL	BDL
6	Total Hardness mg/l	92	112	108	516
7	Calcium Hardness mg/l	55	61	56	214
8	Magnesium Hardness mg/l	37	51	52	302
9	Total Alkalinity mg/l	228	228	272	272
10	Chloride mg/l	41	38	33	163
11	Sulphate mg/l	47	45	38	225
12	Arsenic mg/l	BDL	BDL	BDL	BDL
13	Mercury mg/l	BDL	BDL	BDL	BDL
14	Magnesium mg/l	BDL	BDL	BDL	BDL
15	Lead mg/l	BDL	BDL	BDL	BDL
16	Total Chromium mg/l	BDL	BDL	BDL	BDL

Note: BDL means Below Method Detection Limit.

--End of Report--

Scientific Officer  
10/4/24

Endst. No: 9567-69

Dt. 10/4/24

A copy of the above is forwarded to the:-

1. The Chief Environmental Engineer (Water), Punjab Pollution Control Board, Ludhiana.
2. The Senior Environment Engineer, Punjab Pollution Control Board, Zonal Office, -I, Patiala.
3. The Environment Engineer, Punjab Pollution Control Board, Regional Office, Patiala.

Asst. Scientific Officer  
10/4/24

# **Annexure-8**

## **Green Belt Photographs**

## Annexure-8

NPL is having a complete dedicated team of skilled horticulturists for the forestation and greenery development program at our plant. A green belt are developed inside as well outside plant premises. Also, small patches of gardens are developed inside of the plant premises wherever the open space is available to improve the plant beautification.



**Pic-1 Green belt around coal stockpile area**



**Pic-2 Green belt around plant premises**



**Pic-3 Green belt along boundary**



**Pic-4 Green belt on both sides of road**



**Pic-5 Green belt area railway siding**

# **Annexure-09**

## **CSR Projects and Initiatives**



# NABHA POWER LIMITED

## Corporate Social Responsibility

– FY24

# Thematic Focus Area



Health



Skill &  
Entrepreneurship  
Development



Education & Sports



Water & Environment



Rural Development



Disaster  
Management

## BUDGET VS ACTUAL – FY24

(In Rs Lakh)

Thematic Areas	Budget	Actual
1- Education & Sports	228.12	221.62
2- Rural Development	166.50	200.00
3- Water & Environment	80.00	79.12
4- Health	50.00	43.66
5- Skill & Entrepreneurship Development	40.00	27.85
Administrative Expenses	30.00	29.85
<b>Total</b>	<b>594.62</b>	<b>602.10</b>

**Coverage – Villages: 49 Nos.; Population: 47,000**

# KEY HIGHLIGHTS

## Skills & Entrepreneurship Development

- **Mehar Welfare Society**
  - Facilitated external orders worth 39 Lakhs
  - Covers 66 women for self-sustainability
  - 6 production centres operative
- **Beautician and stitching courses training**
  - 4 Centres
  - 123 trained ,135 trainees
- **Sewing Machine distribution**
  - 30 women ,4 villages,
  - Avg. monthly income –Rs 4,000/-
- **ITI Training:**
  - 10 Students enrolled
  - Scholarship Rs 11,000/- per student

## Education & Sports

- **NPL SAMBHAAVNAA Personality Development Training (300 Students)**
  - XIth & XIIth standard of 5 Govt Schools
- **Learning Enrichment Program (466 Students)**
  - Maths & English teachers, Class : III-V, 16 Schools
- **Construction of Classrooms & School Repair (10 Schools)**
  - 3 Govt Primary Schools Covered
  - 7 Govt school were covered for repair works
- **NPL Scholarships (82 Scholars)**
  - 42 New Scholars (GNM & BCA), ~96% Girl Students
- **Installation of RO purifiers & Water Coolers (22 Schools)**
- **NPL Sports Academy (89 children)**
  - 1 Sports Meet, Cyclothon & Mini Marathon 830 covered
- **NPL Sports Cup (2 Tournaments, 1000 youth)**
  - Over 1000 Youth participated
  - Sports Equipment (49 Youth Sports Clubs)

# KEY HIGHLIGHTS

## Rural Development

- **Construction/repair of Roads** (10 villages)
- **Construction of EWS Houses**
  - 14 EWS houses
  - 14 villages
- **Renovation of Panchayat buildings**
  - 4 villages.
- **Development of low-lying panchayat land** (8 villages)
- **Construction of crop protection wall**
  - Covering 3 villages.

## Water & Environment

- **Cleaning of natural drains & ponds**
  - Crop protection in 12 Villages
- **Nanak Bagichi (10,000 plants)**
  - Bio-diversity rich plantation of 18 varieties, 2 No. villages
- **Solar Installation (5+5+2 KW)**
  - Covered Production centres and Playground

# KEY HIGHLIGHTS

## Health

- **Health & Vision Correction Camps**
  - 11 Camps, 1508 patients
  - 1296 patients (Checkup & Spectacles)
- **Cancer Screening Camps**
  - 2 Health Mela
  - 1158 cases screened for 4 type of cancer
- **Capacity Enhancement of Govt. Health set up:**
  - Set up Advanced OT & Lab facility in CHC Kalomajra
- **Menstrual Hygiene and Adolescence Health**
  - 199 Girls and 100 Boys
- **Blood Donation Camps** (4 Camps, 320 Units)
- **Anti Dengue Campaign** (7 Villages)

# SKILL & ENTREPRENEURSHIP DEVELOPMENT





# UDYOGINI PRODUCTION CENTRES



**5 Centres**  
**5 Villages**

### Products Made

School Dresses, Apparel, Jute Products, Paper Bags & Phulkaari

### Active Artisans

**66**

### FY 24 Income

**INR 39 Lakhs**

### Participated in 5 Consumer Fairs



**CII Fair Chandigarh - 3 Nov 2023 to 6 Nov 2023**



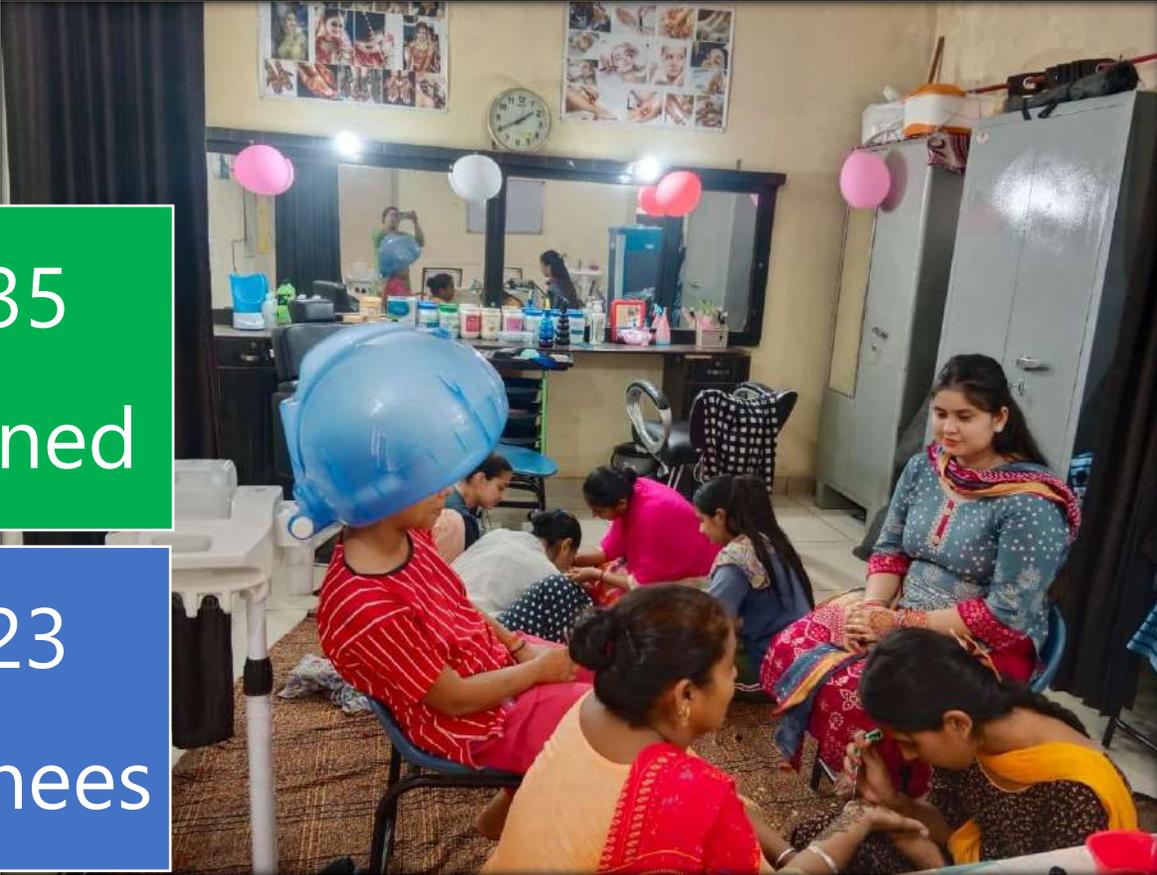
**Punjab University - 3 Nov 2023**

## Cumulative Coverage 7 Villages

Stitching Course; 2 Centres



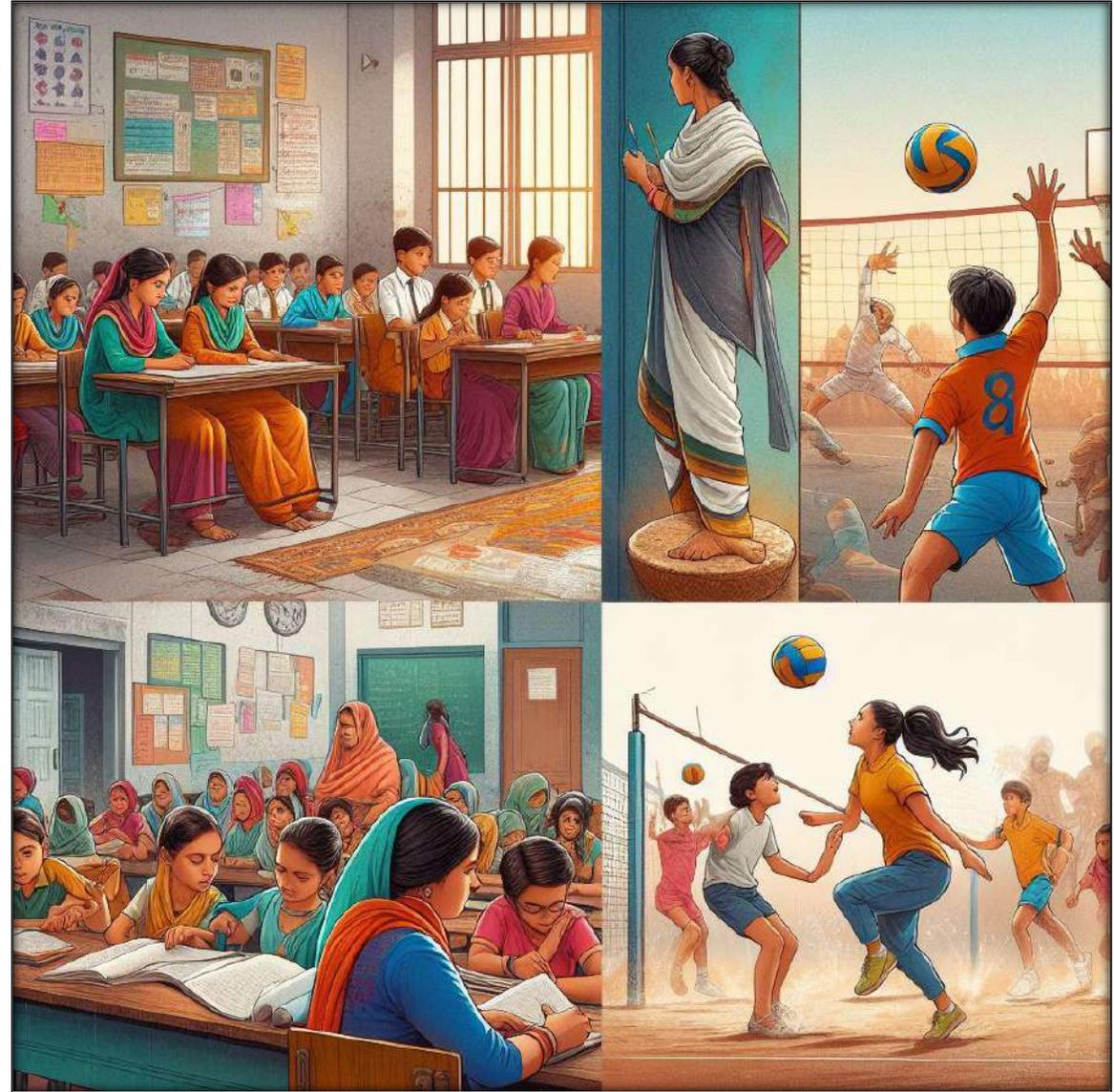
Beautician Course; 2 Centres



135  
Trained

123  
Trainees

# EDUCATION & SPORTS



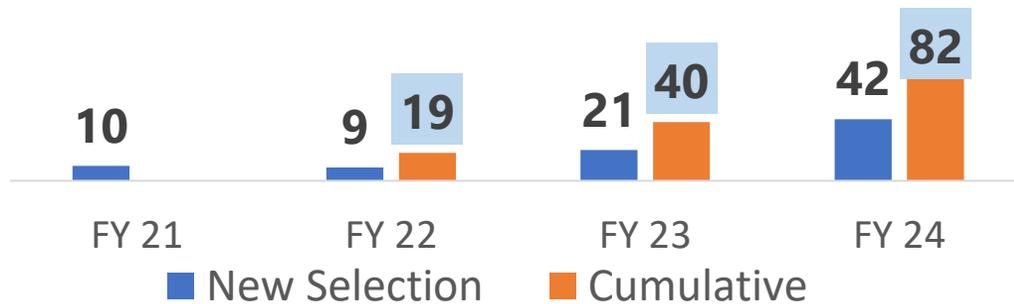


# NPL SCHOLARSHIPS

Each Scholar has been equipped with Tablet to enable E-learning



## Annual Enrollment & Cumulative Nos.



## 82 NPL Scholars





# PERSONALITY DEVELOPMENT TRAINING

## SAMBHAAVNAA (Personality Development Training)

(25 Sept 2023 to 13 Oct 2023)



5 Govt.  
Schools

Class XI & XII

300+  
trained



Present Engagement of Scholars	
Total Scholarships given	10
No. of scholars in job (contract)	4
Average monthly salary (4 scholars) in INR	8566
No. of scholars planning to go abroad	2
No. of scholar undergoing advance training	1
No. of scholars preparing for job in another sector	3

- Scholarship Certificate were given to 10-ITI Scholars who were chosen out of the 49 NPL Villages
- Scholarship amount INR 11,000/-



# LEARNING ENRICHMENT PROGRAMME



**16 Govt. Primary Schools**



**466+ Students**

**16 NPL Educators**

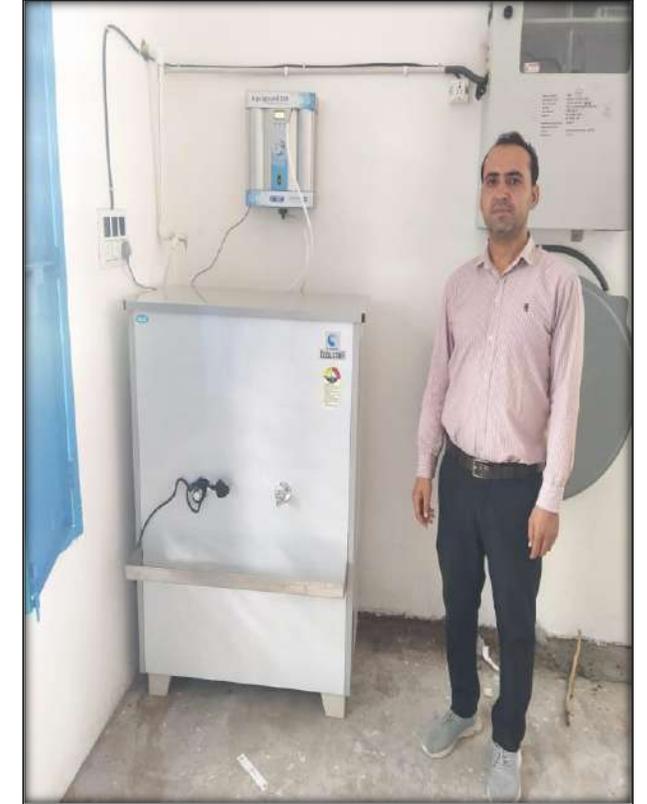
Project aiming to improve learning level of Class 3<sup>rd</sup> to 5<sup>th</sup> students in Math and English, in addition to overall development of children through co-curricular activities





# SWACHH PIO

(Provision of Water Coolers & Purifiers )



Water Coolers & Purifiers with 1+3 yrs. AMC

FY 23

11 Schools

FY 24

22 Schools

Total Govt. Schools Covered

**33**



# CONTINGENCY SUPPORT TO SCHOOLS

(Repair & Construction work in Govt Schools)

Name of the Govt. School	Type of work completed
GMS & GES Jansua	Paver work in school compound & Whitewash
GMS Rangian	Plastering of Boundary Wall
GES Gurditpura	Tiling in Classroom & mid day meal-room
GES Sarai banjara	Tiling in Classroom and corridor
GSS Ugani Sahib	Pathway & Flooring in Classrooms
GES Dadu Majra	Kitchen Shed



Interlock tiles work in GMS, Jansua



Tiling work in GES Gurditpura



Boundary Wall GES Rangian



Tiling in GES Sarai Banjara



Mid Day Meal Shed in GES Dadu Majra



# INTEGRATED SCHOOL DEVELOPMENT

Construction of School Block in 3 Govt. Schools



**Office & Classroom in GES Nalash- 9 Nov 2023**



**Classroom in GES Bhappal – 8 Dec 2023**



**Classroom Construction in Progress in GES Sural Kalan- 6 Jan 2024**



# RURAL SPORTS TOURNAMENTS



In continuation of Youth connect endeavors & to keep the momentum continue, Nabha Power organized NPL Cup (Rural Sports Tournaments)

Teams from across the Punjab state and local NPL CSR covered villages had participated in traditional rural sports events i.e. Kabaddi, Tug of war.



# NPL ATHLETICS ACADEMY

Village Dhumman



**12 Medals at  
State level**

**15 Medals at  
District Level**

**35 Medal at  
Zonal Level**

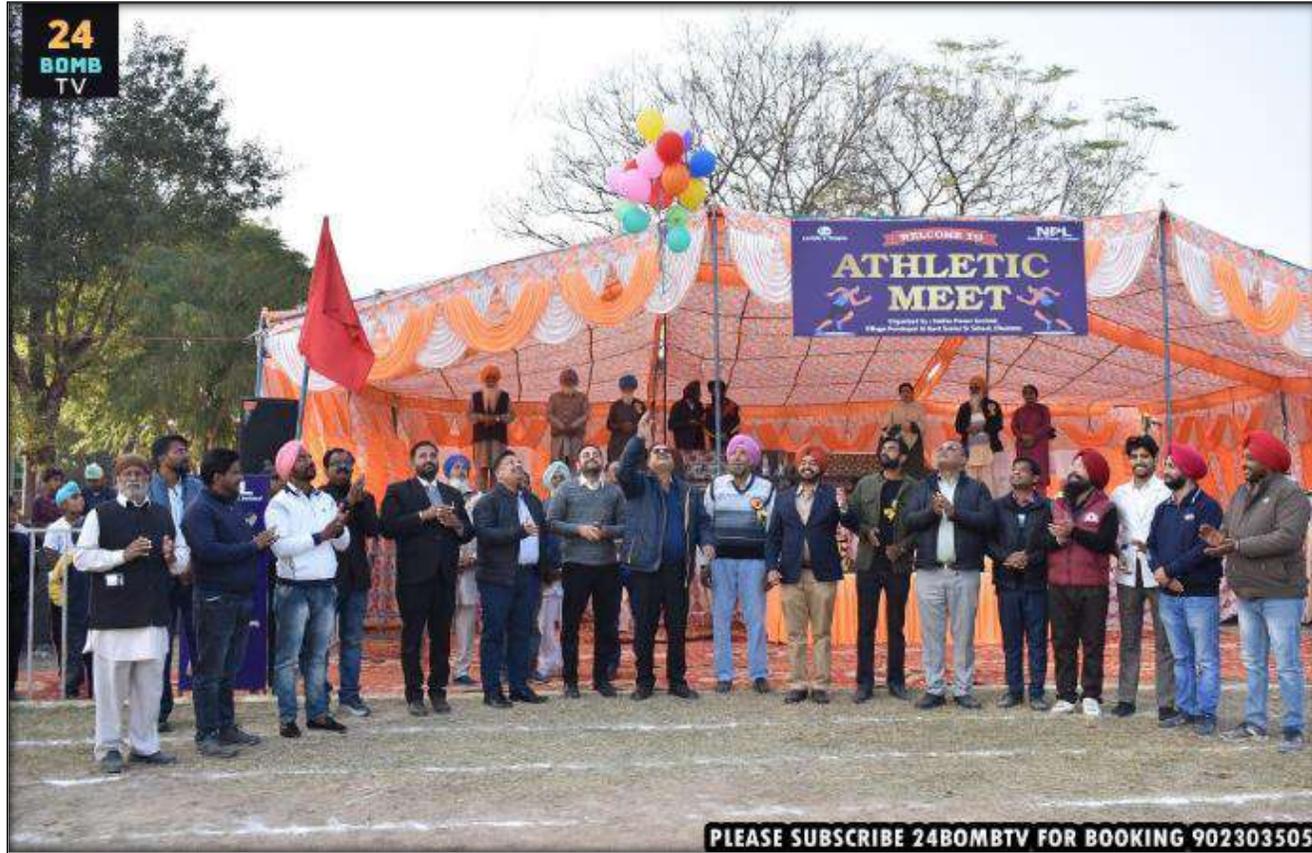
**Total Trainees - 89**

**Boys & Girls Ratio  
40: 49**

**Average Attendance  
79**



# 2<sup>nd</sup> NPL ATHLETICS MEET -19 DEC 2023



Long-awaited athletic track events and activities like race, high jump, long jump and shot put.

430 athletes showed commitment, dedication, discipline, and impressive performances in all the matches seen during the day with nearly 800 spectators. Towards the end, the organising Team thanked the youths, village panchayat and the local volunteers for their extended coordination



# MINI MARATHON



In an inaugural event demonstrating the commitment to social responsibility, Nabha Power Limited (NPL) successfully organized a Mini Marathon on October 15, 2023, in Dhumma village. The event witnessed an impressive turnout, with over 150 students and 20 volunteers from NPL Sports Academy and Government schools participating enthusiastically.



# GREENATHON - CYCLE RALLY ON 5<sup>th</sup> JUNE 2023



**Flagged off by Mr. Rajesh Kumar (Chairman, CSR Internal Committee)**

**Total Distance Covered 12 Km**

**170 Cyclists and 45 Volunteers participated**

**Saplings of Ashoka Tree were planted to mark world environment day**



# ASSISTANCE TO YOUTH SPORTS CLUBS



**Distribution of Volleyball Kits to Youth club members covering all 49 villages**

# HEALTH





Organized in association with World Cancer Care Charitable Society Jalandhar. It benefitted 1138 villagers, of which 702 individuals were helped with vision detection and on spot spectacles were provided

## Assistance to Govt. Hospitals



4 Air Conditioners were given to **Civil Hospital Rajpura** on 8 Sept 2023 for OPDs and patient registration counter



### Assistance to CHC Kalu Majra on 9 Feb 2024

25 KW DG Set, 4 ACs for Ward, 2 Refrigerator for Laboratory  
OT Table, Table for Labor Room, OT Lights, Cardiac Monitor, Dental Radio Vision,  
Cautery for Sealing of blood Vessels, ECG Machine, Semi- Auto Analyzer

# NPL AROGYA Health Camps

12 Health Camps

Vision Correction, Diabetes & BP detection, Blood Examination and referral to Govt. Hospital

Over 1508 Beneficiaries  
(Vision Correction of 594 Beneficiaries)



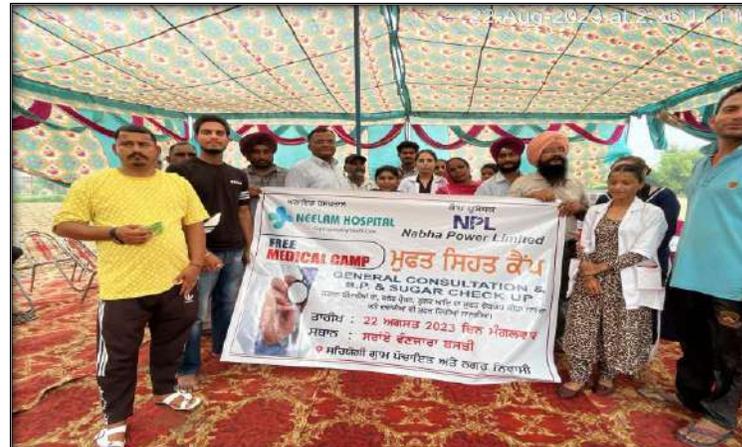
17 July 2023- Nalash



18 July 2023- Rangian



19 July 2023- Bakshiwala



17 Aug 2023 – Sarai Banjara



15 Sept 2023- Harna



20 Sept 2023- Mirjapur



# HEALTH CAMP



## ADOLESCENCE HEALTH CAMP- AWARENESS & DISTRIBUTION OF SANITARY PADS IN GHS MIRJAPUR & NALASH

Nearly 120 Girls were provided Sanitary Pads  
Puberty related aspects and challenges were discussed with over 150 Girls & Boys  
in association with CHC Kalo Majra



## NPL AROGYA

---

### Anti Dengue Drive (Post Floods)

---

Fumigation & Spray of Insecticide  
in 11 Villages

---

**8000+ Beneficiaries**





# BLOOD DONATION CAMPS



To encourage youth participation in social activities, 4 Blood donations camps were organized covering Vill. Sindhran, Balsuan, Gurditpura and Uppal Heri in association with Youth club members and respective village panchayats.

# RURAL DEVELOPMENT





# RURAL INFRASTRUCTURE

**Construction & repair of roads covering 10 villages i.e., Chandu Majra, Badali, Kharola, Gurditpura, Mirzapur, Rai Majra, Kotla, Sadhror, Majri & Kehargarh**



**Majri-Kehargarh**



OPPO F17  
2023/12/16 09:33

**Chandu Majra**



# EWS HOUSING



**14 Poor families who were earlier homeless or living in unsafe/dilapidated house, provided with a home comprising a room, kitchen & washroom**



# RENOVATION OF PANCHAYAT BUILDINGS



Renovation of Panchayat buildings at Balsuan, Dabali Khurd, Rangian & Mirzapur. To be utilised for common village functions/ get to gathers/panchayat meetings.



# PANCHAYAT MEET



**To take valuable feedback of village panchayats/Community representatives about the ongoing NPL CSR projects subsequently suggestions for future CSR plan, A Panchayat meet with strategically important 20 villages was held on 21st Dec 2023**

# WATER & ENVIRONMENT





# INSTALLATION OF SOLAR POWER PLANTS



Installation of 5 KW Off-grid solar power plant completed in Vill Sindhra in Dec 2023



Chairman-PPCB along with CE NPL handed over the Solar Facility on 20 March 2024



Installation of 5 KW Off-grid solar power plant completed in Vill Rangian in Dec 2023



Installation of 2 KW Off-grid solar power plant at NPL Sports Academy, Govt School Vill Dhumman



# NANAK BAGICHI



**In order to contribute towards the environmental cause, 10,000 plants were planted covering 2 Acre of land in Cholti Kheri & Badali Mai ki villages**



# PRE-CAST BOUNDARY WALL



**1.2 kms of precast boundary wall has been constructed towards Rangian, Nalash Kalan, Nalash Khurd and Sural Kalan villages to protect their crops and fields from wild animals**

# CLEANING OF PONDS & DRAINS



To avoid flooding and water logging in fields/low lying areas , cleaning of Natural Drains/Ponds in 12 villages i.e. Cholti Kheri/Bhagrana/Bhateri, Urna,Ugani Sahib, Sural Kalan, Rangian, Sadhror, Niamatpur



Thank you

# **Annexure-10**

## **Ambient Air Quality Monitoring Results**

## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312220855
	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291119
	<b>NABL ULR No.</b> :TC592623000014674F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Near NDTC (AAQMS-1)
Date of Monitoring	: 18-12-2023
Time of Monitoring	: 13:40 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.28
Volume of air sampled,m3	: 1843.20
Avg. Ambient Temperature,°C	: 28

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	9.39
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	22.42
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	91.69
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	43.77

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

### Disclaimer :

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	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291119
	<b>NABL ULR No.</b> :TC592623000014674F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	32.34
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	23.78
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.2
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ:1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQQS 2009.  
Sampling Procedure: SOP/ITC/EW/056.

**REMARKS :**\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312220856
	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291123
	<b>NABL ULR No.</b> :TC592623000014677F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Near Loco Shed (AAQMS-2)
Date of Monitoring	: 18-12-2023
Time of Monitoring	: 14:20 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.25
Volume of air sampled,m3	: 1800.00
Avg. Ambient Temperature,°C	: 28

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	11.26
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	26.31
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	87.33
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	46.72

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document QF : 2501

Page 2 of 2

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	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291123
	<b>NABL ULR No.</b> :TC592623000014677F
	<b>Customer Ref. No.:</b> PO <b>Letter Dated</b> :25.11.2022

e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	36.70
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	25.55
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.3
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ:1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQSS 2009.  
 Sampling Procedure: SOP/ITC/EW/056.

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\*\*\*\*\*End Of Report\*\*\*\*\*

  
 Ravinder Kumar  
 29-12-2023  
 Reviewer

  
 29-12-2023  
 PremKumar  
 [Authorized Signatory]

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## Test Report

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<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312220857
	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291115
	<b>NABL ULR No.</b> :TC592623000014675F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Near Storm Water Sump (AAQMS-3)
Date of Monitoring	: 19-12-2023
Time of Monitoring	: 15:30 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.27
Volume of air sampled,m3	: 1828.80
Avg. Ambient Temperature,°C	: 19

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	10.28
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	20.33
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	88.53
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	41.67

  
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<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312220857
	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291115
	<b>NABL ULR No.</b> :TC592623000014675F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	31.71
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	22.48
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.2
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ:1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQQS 2009.  
Sampling Procedure: SOP/ITC/EW/056.

**REMARKS :**\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312220858
	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291124
	<b>NABL ULR No.</b> :TC592623000014680F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Near Switch Yard (AAQMS-4)
Date of Monitoring	: 19-12-2023
Time of Monitoring	: 15:45 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.25
Volume of air sampled,m3	: 1800.00
Avg. Ambient Temperature,°C	: 19

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	13.62
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	29.39
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	90.61
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	48.40

  
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## Test Report

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Page 2 of 2

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312220858
	<b>Sample Reg. Date</b> :22-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291124
	<b>NABL ULR No.</b> :TC592623000014680F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

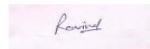
e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	30.56
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	26.86
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.3
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ:1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

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**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQSS 2009.  
Sampling Procedure: SOP/ITC/EW/056.

**REMARKS :**\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Ravinder Kumar  
29-12-2023  
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Document QF : 2501

Page 1 of 2

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312230879
	<b>Sample Reg. Date</b> :23-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291138
	<b>NABL ULR No.</b> :TC592623000014729F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Dadumajra
Date of Monitoring	: 21-12-2023
Time of Monitoring	: 15:35 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.26
Volume of air sampled,m3	: 1814.40
Avg. Ambient Temperature,°C	: 20

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	8.25
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	18.67
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	82.34
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	39.56

  
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<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312230879
	<b>Sample Reg. Date</b> :23-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291138
	<b>NABL ULR No.</b> :TC592623000014729F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	28.93
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	21.76
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.3
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

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**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQQS 2009.  
Sampling Procedure: SOP/ITC/EW/056.

**REMARKS :**\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*\*\*\*End Of Report\*\*\*\*\*

  
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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312230880
	<b>Sample Reg. Date</b> :23-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291139
	<b>NABL ULR No.</b> :TC592623000014724F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Salempur
Date of Monitoring	: 21-12-2023
Time of Monitoring	: 14:30 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.28
Volume of air sampled,m3	: 1843.20
Avg. Ambient Temperature,°C	: 20

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	14.70
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	21.89
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	86.37
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	40.40

  
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## Test Report

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<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312230880
	<b>Sample Reg. Date</b> :23-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291139
	<b>NABL ULR No.</b> :TC592623000014724F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	31.82
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	23.66
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.4
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQSS 2009.  
Sampling Procedure: SOP/ITC/EW/056.

**REMARKS :**\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*\*\*\*End Of Report\*\*\*\*\*

  
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29-12-2023  
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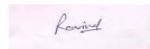
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## Test Report

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312230881
	<b>Sample Reg. Date</b> :23-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291140
	<b>NABL ULR No.</b> :TC592623000014730F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

<b>Test Report as per :</b>	: NAAQS 2009
<b>Sampling Information :</b>	
Location of Sampling Point	: Dabholi
Date of Monitoring	: 21-12-2023
Time of Monitoring	: 16:25 hrs
Purpose of Monitoring	: For Self Monitoring
Duration of Monitoring,minutes	: 1440
Avg. Flow Rate of Sampling,m3/min	: 1.25
Volume of air sampled,m3	: 1800.00
Avg. Ambient Temperature,°C	: 20

<b>Description</b>					
Description		Ambient Air Quality Monitoring			
S.No.	Parameters	Instrument	Method	Specification	Result
1.	<b>Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>				
a.	Sulphur Dioxide(SO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	80 Max	16.31
b.	Nitrogen Dioxide(NO <sub>2</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	80 Max	29.57
c.	Particulate Matter (PM <sub>10</sub> ),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	100 Max	90.56
d.	Particulate matter (PM 2.5),µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	60 Max	45.45

  
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Document QF : 2501

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<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312230881
	<b>Sample Reg. Date</b> :23-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291140
	<b>NABL ULR No.</b> :TC592623000014730F
	<b>Customer Ref. No.:</b> PO
	<b>Letter Dated</b> :25.11.2022

e.	Ammonia(NH <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25):2018	400 Max	27.62
f.	Lead(As Pb),µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	1.0 Max	BLQ (LOQ:0.1)
g.	Mercury(as Hg), µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	Not Specified	BLQ (LOQ:0.1)
<b>2.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>				
a.	Ozone(O <sub>3</sub> ),µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	100 Max.	21.86
b.	Carbon Monoxide(CO),mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	2 Max.	1.2
<b>3.</b>	<b>Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>				
a.	Benzene(C <sub>6</sub> H <sub>6</sub> ),µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	5 Max	BLQ(LOQ1.0)
b.	Benzo(a) Pyrene Particulate Phase only,ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	1 Max	BLQ(LOQ:0.5)
c.	Arsenic(as As),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	6 Max.	BLQ (LOQ:1.0)
d.	Nickel(As Ni),ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	20 Max.	BLQ (LOQ:1.0)

# represents Customer Defined Fields

**NOTE :** NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAQPS 2009.  
Sampling Procedure: SOP/ITC/EW/056.

**REMARKS :**\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Ravinder Kumar  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Report No. : ICE-2404020073

ULR No. : TC592624000005866F

**ORIGINAL**  
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### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403150590

Sample Name : Ambient Air

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 11.03.2024, Location: Near NDTC (AAQMS-1)

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Anand Kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 11.03.2024, Location: Near NDTC (AAQMS-1)

Test Report as per : NAAQS 2009

Received On : 15-03-2024

Commenced On : 15-03-2024

Completed On : 21-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

#### S. No. Sampling Information:

(a) Purpose of Monitoring	: For Self Monitoring
(b) Location of Sampling Point	: Near NDTC (AAQMS-1)
(c) Date of Monitoring	: 11-03-2024
(d) Duration of Monitoring , minutes	: 1440
(e) Avg. Flow Rate of Sampling , m3/min	: 1.27
(f) Volume of air sampled , m3	: 1828.80
(g) Avg. Ambient Temperature , °C	: 27
(h) Time of Monitoring	: 12:30 hrs

#### Description: Ambient Air Quality Monitoring

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-2): 2017	10.46	80 Max
2	Nitrogen Dioxide(NO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-6): 2017	16.39	80 Max
3	Particulate Matter (PM10)	µg/m3	Gravimetric	IS: 5182 (P-23): 2017	90.32	100 Max
4	Particulate matter (PM 2.5)	µg/m3	Gravimetric	IS: 5182 (P-24)-2019	42.51	60 Max
5	Lead(As Pb)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-25): 2018	26.35	400 Max



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

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## Test Report

Report No. : ICE-2404020073

ULR No. : TC592624000005866F



TC-5926

**ORIGINAL**  
Page 2 of 2



7	Mercury(as Hg)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified
<b>(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>						
1	Ozone(O3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-9): 2019	22.35	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.2	2 Max.
<b>(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>						
1	Benzene(C6H6)	µg/m3	GC	IS: 5182 (P-11): 2017	BLQ(LOQ:1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m3	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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



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## Test Report

Report No. : ICE-2404020072

ULR No. : TC592624000005865F



TC-5926

**ORIGINAL**  
Page 1 of 2



**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403150591

Sample Name : Ambient Air

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 11.03.2024, Location: Near Loco Shed (AAQMS-2)

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Anand Kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 11.03.2024, Location: Near Loco Shed (AAQMS-2)

Test Report as per : NAAQS 2009

Received On : 15-03-2024

Commenced On : 15-03-2024

Completed On : 21-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

**S. No. Sampling Information:**

- |   |                            |
|---|----------------------------|
| (a) Purpose of Monitoring               | : For Self Monitoring      |
| (b) Location of Sampling Point          | : Near Loco Shed (AAQMS-2) |
| (c) Date of Monitoring                  | : 11-03-2024               |
| (d) Duration of Monitoring , minutes    | : 1440                     |
| (e) Avg. Flow Rate of Sampling , m3/min | : 1.27                     |
| (f) Volume of air sampled , m3          | : 1828.80                  |
| (g) Avg. Ambient Temperature , °C       | : 27                       |
| (h) Time of Monitoring                  | : 12:45 hrs                |

**Description: Ambient Air Quality Monitoring**

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-2): 2017	12.35	80 Max
2	Nitrogen Dioxide(NO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-6): 2017	22.47	80 Max
3	Particulate Matter (PM10)	µg/m3	Gravimetric	IS: 5182 (P-23): 2017	88.63	100 Max
4	Particulate matter (PM 2.5)	µg/m3	Gravimetric	IS: 5182 (P-24)-2019	40.40	60 Max
5	Lead(As Pb)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-25): 2018	27.58	400 Max



02/04/2024

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02/04/2024

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## Test Report

Report No. : ICE-2404020072

ULR No. : TC592624000005865F



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7	Mercury(as Hg)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified
<b>(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>						
1	Ozone(O3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-9): 2019	24.57	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.4	2 Max.
<b>(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>						
1	Benzene(C6H6)	µg/m3	GC	IS: 5182 (P-11): 2017	BLQ(LOQ:1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m3	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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



02/04/2024

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## Test Report

Report No. : ICE-2404020074

ULR No. : TC592624000005867F



TC-5926

**ORIGINAL**  
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### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403150592

Sample Name : Ambient Air

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 12.03.2024, Location: Near Storm  
Water Sump (AAQMS-3)

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Anand Kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 12.03.2024, Location: Near Storm Water Sump (AAQMS-3)

Test Report as per : NAAQS 2009

Received On : 15-03-2024

Commenced On : 15-03-2024

Completed On : 21-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

#### S. No. Sampling Information:

(a) Purpose of Monitoring	: For Self Monitoring
(b) Location of Sampling Point	: Near Storm Water Sump (AAQMS-3)
(c) Date of Monitoring	: 12-03-2024
(d) Duration of Monitoring , minutes	: 1440
(e) Avg. Flow Rate of Sampling , m3/min	: 1.26
(f) Volume of air sampled , m3	: 1814.40
(g) Avg. Ambient Temperature , °C	: 27
(h) Time of Monitoring	: 13:30 hrs

#### Description: Ambient Air Quality Monitoring

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-2): 2017	8.36	80 Max
2	Nitrogen Dioxide(NO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-6): 2017	19.33	80 Max
3	Particulate Matter (PM10)	µg/m3	Gravimetric	IS: 5182 (P-23): 2017	86.49	100 Max
4	Particulate matter (PM 2.5)	µg/m3	Gravimetric	IS: 5182 (P-24)-2019	38.72	60 Max
5	Lead(As Pb)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-25): 2018	29.28	400 Max



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## Test Report

Report No. : ICE-2404020074

ULR No. : TC592624000005867F



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Page 2 of 2

7	Mercury(as Hg)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified
<b>(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>						
1	Ozone(O3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-9): 2019	25.56	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.3	2 Max.
<b>(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>						
1	Benzene(C6H6)	µg/m3	GC	IS: 5182 (P-11): 2017	BLQ(LOQ:1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m3	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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## Test Report

Report No. : ICE-2404020069

ULR No. : TC592624000005862F



TC-5926

**ORIGINAL**  
Page 1 of 2



**Issued To :**

**Nabha Power Limited**

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403150593

Sample Name : Ambient Air

Sample Condition : Good

**Sample Details (if any)**

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 12.03.2024, Location: Near Switch  
Yard (AAQMS-4)

Date of Manufacture : NA

Received On : 15-03-2024

Commenced On : 15-03-2024

Completed On : 21-03-2024

Date of Report : 02-04-2024

Sample Submission Type : Sampled by ITC /Anand Kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 12.03.2024, Location: Near Switch Yard (AAQMS-4)

Test Report as per : NAAQS 2009

Date of Expiry : NA

**S. No. Sampling Information:**

- |   |                              |
|---|------------------------------|
| (a) Purpose of Monitoring               | : For Self Monitoring        |
| (b) Location of Sampling Point          | : Near Switch Yard (AAQMS-4) |
| (c) Date of Monitoring                  | : 12-03-2024                 |
| (d) Duration of Monitoring , minutes    | : 1440                       |
| (e) Avg. Flow Rate of Sampling , m3/min | : 1.27                       |
| (f) Volume of air sampled , m3          | : 1828.80                    |
| (g) Avg. Ambient Temperature , °C       | : 27                         |
| (h) Time of Monitoring                  | : 13:15 hrs                  |

**Description: Ambient Air Quality Monitoring**

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-2): 2017	9.66	80 Max
2	Nitrogen Dioxide(NO2)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-6): 2017	23.65	80 Max
3	Particulate Matter (PM10)	µg/m3	Gravimetric	IS: 5182 (P-23): 2017	87.62	100 Max
4	Particulate matter (PM 2.5)	µg/m3	Gravimetric	IS: 5182 (P-24)-2019	37.46	60 Max
5	Lead(As Pb)	µg/m3	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH3)	µg/m3	UV-Spectrophotometer	IS: 5182 (P-25): 2018	28.32	400 Max



02/04/2024

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02/04/2024

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## Test Report

Report No. : ICE-2404020069

ULR No. : TC592624000005862F



TC-5926

**ORIGINAL**  
Page 2 of 2



7	Mercury(as Hg)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified
<b>(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)</b>						
1	Ozone(O <sub>3</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	23.49	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.3	2 Max.
<b>(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)</b>						
1	Benzene(C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	BLQ(LOQ:1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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



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## Test Report

Report No. : ICE-2404020068

ULR No. : TC592624000005861F

**ORIGINAL**  
Page 1 of 2



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403190726

Sample Name : Ambient Air

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 14.03.2024, Location: Dabhali

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC Lab /Jitesh kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 14.03.2024, Location: Dabhali

Test Report as per : NAAQS 2009

Received On : 19-03-2024

Commenced On : 19-03-2024

Completed On : 27-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

#### S. No. Sampling Information:

(a) Purpose of Monitoring	: For Self Monitoring
(b) Location of Sampling Point	: Dabhali
(c) Date of Monitoring	: 14-03-2024
(d) Duration of Monitoring , minutes	: 1440
(e) Avg. Flow Rate of Sampling , m3/min	: 1.27
(f) Volume of air sampled , m3	: 1828.80
(g) Avg. Ambient Temperature , °C	: 29
(h) Time of Monitoring	: 13:30 hrs

#### Description: Ambient Air Quality Monitoring

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO <sub>2</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	13.74	80 Max
2	Nitrogen Dioxide(NO <sub>2</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	27.47	80 Max
3	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	85.62	100 Max
4	Particulate matter (PM 2.5)	µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	45.45	60 Max
5	Lead(As Pb)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH <sub>3</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25): 2018	26.39	400 Max
7	Mercury(as Hg)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified



02/04/2024

Vikrant Saini

Verified by



02/04/2024

Prem Kumar

Authorised by

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## Test Report

Report No. : ICE-2404020068

ULR No. : TC592624000005861F



TC-5926

**ORIGINAL**  
Page 2 of 2



(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)						
1	Ozone(O3)	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	22.47	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.4	2 Max.
(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)						
1	Benzene(C6H6)	µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	BLQ(LOQ: 1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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



02/04/2024

**Vikrant Saini**

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02/04/2024

**Prem Kumar**

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## Test Report

Report No. : ICE-2404020070

ULR No. : TC592624000005863F

**ORIGINAL**  
Page 1 of 2



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403190727

Sample Name : Ambient Air

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 14.03.2024, Location: Dadumajra

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC Lab /Jitesh kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 14.03.2024, Location: Dadumajra

Test Report as per : NAAQS 2009

Received On : 19-03-2024

Commenced On : 19-03-2024

Completed On : 27-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

#### S. No. Sampling Information:

(a) Purpose of Monitoring	: For Self Monitoring
(b) Location of Sampling Point	: Dadumajra
(c) Date of Monitoring	: 14-03-2024
(d) Duration of Monitoring , minutes	: 1440
(e) Avg. Flow Rate of Sampling , m3/min	: 1.26
(f) Volume of air sampled , m3	: 1814.40
(g) Avg. Ambient Temperature , °C	: 29
(h) Time of Monitoring	: 12:30 hrs

#### Description: Ambient Air Quality Monitoring

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO <sub>2</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	11.25	80 Max
2	Nitrogen Dioxide(NO <sub>2</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	23.37	80 Max
3	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	79.28	100 Max
4	Particulate matter (PM 2.5)	µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	42.51	60 Max
5	Lead(As Pb)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH <sub>3</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25): 2018	27.63	400 Max
7	Mercury(as Hg)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

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## Test Report

Report No. : ICE-2404020070

ULR No. : TC592624000005863F



TC-5926

**ORIGINAL**  
Page 2 of 2



(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)						
1	Ozone(O3)	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	23.50	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.3	2 Max.
(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)						
1	Benzene(C6H6)	µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	BLQ(LOQ: 1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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

02/04/2024

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Verified by

02/04/2024

**Prem Kumar**

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## Test Report

Report No. : ICE-2404020067

ULR No. : TC592624000005860F

**ORIGINAL**  
Page 1 of 2



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403190728

Sample Name : Ambient Air

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 FP, 2x30ml, 2x10ml

Packaging Mode : Packed in poly pack & in vials

Batch No./QR Code : Date of Sampling: 14.03.2024, Location: Salempur

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC Lab /Jitesh kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. on Date of Sampling: 14.03.2024, Location: Salempur

Test Report as per : NAAQS 2009

Received On : 19-03-2024

Commenced On : 18-03-2024

Completed On : 27-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

#### S. No. Sampling Information:

(a) Purpose of Monitoring	: For Self Monitoring
(b) Location of Sampling Point	: Salempur
(c) Date of Monitoring	: 14-03-2024
(d) Duration of Monitoring , minutes	: 1440
(e) Avg. Flow Rate of Sampling , m3/min	: 1.29
(f) Volume of air sampled , m3	: 1857.60
(g) Avg. Ambient Temperature , °C	: 29
(h) Time of Monitoring	: 14:30 hrs

#### Description: Ambient Air Quality Monitoring

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Atmospheric Pollution</b>						
<b>(I) Ambient Air Quality Parameters(Time weighted Avg- 24 Hours)</b>						
1	Sulphur Dioxide(SO <sub>2</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-2): 2017	9.29	80 Max
2	Nitrogen Dioxide(NO <sub>2</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-6): 2017	20.35	80 Max
3	Particulate Matter (PM10)	µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-23): 2017	88.42	100 Max
4	Particulate matter (PM 2.5)	µg/m <sup>3</sup>	Gravimetric	IS: 5182 (P-24)-2019	45.45	60 Max
5	Lead(As Pb)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.1)	1.0 Max
6	Ammonia(NH <sub>3</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-25): 2018	28.31	400 Max
7	Mercury(as Hg)	µg/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:0.01)	Not Specified



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

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## Test Report

Report No. : ICE-2404020067

ULR No. : TC592624000005860F



TC-5926

**ORIGINAL**  
Page 2 of 2



(II) Ambient Air Quality Parameters(Time weighted Avg- 8 Hours)						
1	Ozone(O <sub>3</sub> )	µg/m <sup>3</sup>	UV-Spectrophotometer	IS: 5182 (P-9): 2019	26.41	100 Max.
2	Carbon Monoxide(CO)	mg/m <sup>3</sup>	GC	IS: 5182 (P-10): 2019	1.2	2 Max.
(III) Ambient Air Quality Parameters(Time weighted Avg- Annual*)						
1	Benzene(C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	GC	IS: 5182 (P-11): 2017	BLQ(LOQ: 1.0)	5 Max
2	Benzo(a) Pyrene Particulate Phase only	ng/m <sup>3</sup>	GCMSMS	IS: 5182 (P-12): 2019	BLQ(LOQ:0.5)	1 Max
3	Arsenic(as As)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	6 Max.
4	Nickel(As Ni)	ng/m <sup>3</sup>	ICPOES	STP/ITC/EW/002	BLQ(LOQ:1.0)	20 Max.

**NOTE** : NA- Not Applicable, BLQ- Below limit of Quantification, LOQ- Limit of Quantification, Requirement as per NAAQS 2009. Sampling Procedure: SOP/ITC/EW/056.

**REMARKS** : \*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

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



02/04/2024

**Vikrant Saini**

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**Prem Kumar**

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# **Annexure-11**

**Expenses Incurred for  
Environment Protection  
Measures in FY 23-24  
(April-2023 to March-2024)**

<b>Details of Expenses Incurred for Environment Protection Measures</b>		
<b>FY 2023-24 (01.04.2023 to 31.03.2024)</b>		
<b>S.No.</b>	<b>Particulars</b>	<b>Amount (Rs)</b>
<b>A</b>	<b>Air Pollution</b>	
1	Cost of Energy Consumption in ESPs/Bag Filters	81239586
2	Cost of Maintenance of Ash Silos	250000
3	Cost of operation of Dust Suppression and Extraction System	685994
4	Cost of electrical spares & consumables for ESP maintenance	704365
5	Cost of electrical services for ESP	1456739
6	AMC Services for ESP for FY 22-23	3008545
7	Unit #1 Annual Overhauling Services	2314039
8	Unit#2 Capital Overhauling Services	2137151
7	ESP Spares & Consumables	1439717
	<b>Water Pollution</b>	
8	Cost of Energy Consumption in STP	98588
9	Cost of Energy Consumption in ETP	6961901
10	Cost of Chemical used at ETP and STP	4593203
	<b>Environment Monitoring Expenses</b>	
11	Cost of Manpower	1206240
12	Cost of Consumables	124745
13	Cost of running of Environment monitoring vehicle	837879
14	AMC/Calibration for environment monitoring equipments.	41200
15	AMC/Calibration/ maintenance of online environment monitoring equipments.	1978000
	<b>Third Party MoEF&amp;CC approved laboratory testing charges.</b>	
16	Third Party MoEF&CC approved laboratory testing charges for AAQ,Stack,Waste Water,Fly Ash, Bottom Ash etc.	259718
	<b>Infrastructure Development</b>	
17	Construction of Roads	6348820
	<b>Green Belt Development &amp; Maintenance</b>	
18	Development and Maintenance of Green Plants	5417817
19	Maintenance of Landscape Area	3611878
	<b>Solar Harnessing Expenses</b>	
20	Solar Harnessing and maintenance Expenses	200000
	<b>Salary &amp; Wages of HSE Professionals</b>	
21	Salary & Wages of HSE Professionals	4553463
	<b>Ash Dyke Management</b>	
22	Expenses for Ash Dyke Maintenance(Civil)	585000
23	Expenses for Ash Dyke Maintenance(Mechanical)	200000
	<b>Energy Consumption for transportation of Bottom Ash.</b>	
24	Energy Consumption for transportation of Bottom Ash & Fly Ash	141116880
	<b>Training, Subscription &amp; Legal Updates and Promotional Activities</b>	
25	Subscription & Legal Updates	17700
26	World Environment Day Celebration	7993
	<b>Disposal of Hazardous Waste</b>	
27	Disposal of Hazardous Waste charges	41769
28	Bio-Medical Waste disposal charges	29400
	<b>Housekeeping Expenses</b>	
29	Housekeeping Expenses	16141216
30	Compliance Audit for Ash disposal	345150
	<b>Total in Rupees(₹)</b>	<b>287954695</b>

## **Annexure-12**

# **The Photograph of Main Gate Display Board**



# NABHA POWER LIMITED



2 X 700 MW RAJPURA SUPER THERMAL POWER STATION

## ENVIRONMENTAL DATA DISPLAY

	UNIT-1	UNIT-2	UOM
OPACITY	41.3	42.0	mg/NM3
SO2	885.9	1265.8	mg/NM3
NOX	221.9	197.5	mg/NM3

**Annexure-13**

**Solar Harness Report**



## Solar Energy Report for the Period

From

1<sup>st</sup> October-2023 to 31<sup>st</sup> March-2024

Sr. No	Month	Numbers of Unit Generated (KWh)
1	October-23	17453.28
2	November-23	10800.22
3	December-23	11206.91
4	January-23	6070.18
5	February-23	16261.82
6	March-23	21382.46
Total generation in KWh		83174.87

# **Annexure-14**

## **Test Report of Heavy Metal Analysis in Coal**



## Test Report

**ORIGINAL**  
Page 1 of 1

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura, 140401 Punjab, India	<b>Sample Reg. No.</b> : B01-2403150003 <b>Sample Reg. Date.</b> : 15/03/2024 <b>Report Date.</b> : 20/03/2024 <b>Report No.</b> : ICB-2403200068 <b>Customer Ref. No.</b> : PO <b>Letter Dated</b> : 25/11/2022
--	---

Sample Particulars	
<b>Name of Sample<sup>#</sup></b> : Coal	
<b>Submitted By<sup>#</sup></b> : Nabha Power Limited	
<b>Batch No.<sup>#</sup></b> : NA	<b>Batch Size<sup>#</sup></b> : NA
<b>Manufactured By<sup>#</sup></b> : NA	<b>Mfg. Lic. No.<sup>#</sup></b> : NA
<b>Supplied By<sup>#</sup></b> : Not Specified	
<b>Date of Manufacture<sup>#</sup></b> : NA	<b>Date of Expiry<sup>#</sup></b> : NA
<b>Sample Qty<sup>#</sup></b> : 500gm	<b>Sample Condition</b> : Good
<b>Grade<sup>#</sup></b> : NA	<b>Brand Name<sup>#</sup></b> : NA
<b>Official Seal</b> : Not Applicable	<b>Official Signature</b> : Not Applicable
<b>Packaging Details</b> : Packed in poly pack	<b>Declared values(if any)</b> : Not Specified
<b>Any Other Information</b> : Sample collected by Lab rep. on 12.03.2024	
<b>Test Report as per</b> : Party Specification	<b>With Amendent No.(s)</b> : Not Specified

Test Results						
<b>Analysis started on</b> : 18/03/2024		<b>Analysis completed on</b> : 19/03/2024				
<b>Description</b> : Coal Sample						
S. No.	Parameter	Unit	Instrument	Method	Requirements	Result
<b>Discipline : Chemical</b>						
<b>Group : Solid Fuels</b>						
<b>1</b>	<b>Heavy Metals</b>					
(a)	Arsenic(as As)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	BLQ(LOQ :1.0)
(b)	Lead(as Pb)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	9.72
(c)	Chromium(as Cr)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	10.31
(d)	Mercury(as Hg)	(mg/kg)	ICPOES	STP/ITC/F/INST/008	NA	BLQ(LOQ :1.0)

# represents Customer Defined Fields

**Remarks:** Party asked for the above tests only.

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

20/03/2024  
**Brijesh Singh**  
Verified by

20/03/2024  
**Kamal Grover**  
Authorised by

### Interstellar Testing Centre PVT. LTD.

86, Industrial Area, Phase-1, Panchkula-134109 (Haryana)  
Panchkula-134109 (Haryana)  
Phone : (O) 0172-2561543, 2565825  
Email : customersupport@itclabs.com  
Visit us : www.itclabs.com

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## **Annexure-15**

# **Test Report of Radioactive Analysis in Coal, Fly Ash & Bottom Ash**



# Sophisticated Analytical Instruments Laboratories

**Society** (Registered as Society with Registrar of Firms & Societies, Punjab, Chandigarh)

Thapar Technology Campus, Bhadson Road, Patiala-147 004 (India)

## TEST REPORT

Test Report No.:	NN(D)/23-24/766	Date:	20.04.2024
Service No.	NN(D)/23-24/766 (01)	Customer's Ref.	Sample Collected by Mr. Amit Kumar on dtd 18.03.2024
Customer's name and address:			
<b>M/s Nabha Power Limited</b> Post Box 28, Near village Nalash Rajpura, Distt. Patiala 140401, Punjab Kind attn.: Mr. Raman Singh			
Sample Description	Bottom Ash		
Condition of the sample received	O.K.		
Customer's sample identification No. (if any)	01- Bottom Ash		
Quantity/number of samples	½ kg / 1		
Sampling Procedure (if any)	--		
Test parameters	Alpha emitters, Beta emitters, Gamma emitters		
Standard/Specification/Method followed	As mentioned below		
Deviations (if any)	--		
Documents constituting this report (if any)	--		
Date of Receipt of Job	Date of Completion of Job	Total Number of Pages	
18.03.2024	19.04.2024	3	

## TEST RESULTS

S. No.	Parameters	Test Method	Unit	Results (01- Bottom Ash)
1	Alpha emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605 A with Alpha Scintillation detector	Bq/Kg	Not detected
2	Beta emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A with GM detector Probe	Bq/Kg	Not detected
3	Gamma emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with GM detector Probe	Bq/Kg	Not detected

Page 1 of 3

**Mr. R. B. Verma**  
Senior Scientific Assistant  
(Authorized Signatory)

- Note:
1. The results listed refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied
  2. Samples will be destroyed after one month (except water, wastewater) from the date of issue of the test report unless otherwise specified
  3. This report is not to be reproduced wholly or in part and cannot be used as an evidence in the products is neither inferred nor implied. court of law and should not be used in any advertising media without special permission in writing.
  4. In case any reconfirmation of contents of the test report is required, please contact the authorized signatory of the test report within 15 days of the issue of test report



# Sophisticated Analytical Instruments Laboratories

**Society** (Registered as Society with Registrar of Firms & Societies, Punjab, Chandigarh)

Thapar Technology Campus, Bhadson Road, Patiala-147 004 (India)

## TEST REPORT

Test Report No.:	NN(D)/23-24/766	Date:	20.04.2024
Service No.	NN(D)/23-24/766 (02)	Customer's Ref.	Sample Collected by Mr. Amit Kumar on dtd 18.03.2024
Customer's name and address:			
M/s Nabha Power Limited Post Box 28, Near village Nalash Rajpura, Distt. Patiala 140401, Punjab Kind attn.: Mr. Raman Singh			
Sample Description	Fly Ash		
Condition of the sample received	O.K.		
Customer's sample identification No. (if any)	02- Fly Ash		
Quantity/number of samples	½ kg / 1		
Sampling Procedure (if any)	--		
Test parameters	Alpha emitters, Beta emitters, Gamma emitters		
Standard/Specification/Method followed	As mentioned below		
Deviations (if any)	--		
Documents constituting this report (if any)	--		
Date of Receipt of Job	Date of Completion of Job	Total Number of Pages	
18.03.2024	19.04.2024	3	

## TEST RESULTS

S. No.	Parameters	Test Method	Unit	Results (02 - Fly Ash)
1	Alpha emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with Alpha Scintillation detector	Bq/Kg	Not detected
2	Beta emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with GM detector Probe	Bq/Kg	Not detected
3	Gamma emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with GM detector Probe	Bq/Kg	Not detected

Page 2 of 3

**Mr. R. B. Verma**  
Senior Scientific Assistant  
(Authorized Signatory)

- Note:
1. The results listed refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied
  2. Samples will be destroyed after one month (except water, wastewater) from the date of issue of the test report unless otherwise specified
  3. This report is not to be reproduced wholly or in part and cannot be used as an evidence in the products is neither inferred nor implied. court of law and should not be used in any advertising media without special permission in writing.
  4. In case any reconfirmation of contents of the test report is required, please contact the authorized signatory of the test report within 15 days of the issue of test report



# Sophisticated Analytical Instruments Laboratories

**Society** (Registered as Society with Registrar of Firms & Societies, Punjab, Chandigarh)

Thapar Technology Campus, Bhadson Road, Patiala-147 004 (India)

## TEST REPORT

Test Report No.:	NN(D)/23-24/766	Date:	20.04.2024
Service No.	NN(D)/23-24/766 (03)	Customer's Ref.	Sample Collected by Mr. Amit Kumar on dtd 18.03.2024
Customer's name and address:			
<b>M/s Nabha Power Limited</b> Post Box 28, Near village Nalash Rajpura, Distt. Patiala 140401, Punjab Kind attn.: Mr. Raman Singh			
Sample Description	Coal		
Condition of the sample received	O.K.		
Customer's sample identification No. (if any)	03- Coal		
Quantity/number of samples	½ kg / 1		
Sampling Procedure (if any)	--		
Test parameters	Alpha emitters, Beta emitters, Gamma emitters		
Standard/Specification/Method followed	As mentioned below		
Deviations (if any)	--		
Documents constituting this report (if any)	--		
Date of Receipt of Job	Date of Completion of Job	Total Number of Pages	
18.03.2024	19.04.2024	3	

## TEST RESULTS

S. No.	Parameters	Test Method	Unit	Results (03 - Coal)
1	Alpha emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with Alpha Scintillation detector	Bq/Kg	Not detected
2	Beta emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with GM detector Probe	Bq/Kg	Not detected
3	Gamma emitters	EPA-600/4-78-039 July 1978 Followed by Radiation Counting System RC605A A with GM detector Probe	Bq/Kg	Not detected

Page 3 of 3

.....End of the report.....

**Mr. R. B. Verma**  
Senior Scientific Assistant  
(Authorized Signatory)

- Note:
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# **Annexure-16**

## **Test Report of Surface Water Quality**

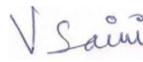
## Test Report

Document QF : 2501  
Page 1 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312190657 <b>Sample Reg. Date</b> :19-12-2023 <b>Report Date</b> :29-12-2023 <b>Report No.</b> :ICE-2312291109 <b>NABL ULR No.</b> :TC592623000014672F <b>Customer Ref. No.:</b> PO <b>Letter Dated</b> :25-11-2022
<b>Test Report as per IS:</b> BIS Specification IS:10500-2012	<b>With Amendment No.(s):</b> 01 to 04

### PART A : PARTICULARS OF SAMPLE SUBMITTED

a)	Nature of Sample#	Water Sample (Marked Surface Water)
b)	Sample Condition	Good
c)	Grade / Variety / Type / Class / Size etc.	NA
d)	Brand Name	NA
e)	Declared Values,if any	NA
f)	Code No.	
g)	Batch Number#	NA
h)	D.O.M#	NA
i)	Date of Expiry#	NA
j)	Sample Quantity#	2 Ltr
k)	Batch Size/Location#	NA
l)	Mode of Packing	Packed in Cans
m)	Date of Receipt	19-12-2023
n)	Date of Start	19-12-2023
o)	Date of Completion	23-12-2023
p)	Seal (Intact/Not Intact/Unsealed)	NA
q)	IO'S Signature (Signed/Unsigned)	Unsigned
r)	Any Other Information	Sample Collected by lab rep. Mr. Jitesh on 18-12-2023

  
Vikrant  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 2 of 3

<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura	<b>Sample Reg. No.</b> :E01-2312190657
	<b>Sample Reg. Date</b> :19-12-2023
	<b>Report Date</b> :29-12-2023
	<b>Report No.</b> :ICE-2312291109
	<b>NABL ULR No.</b> :TC592623000014672F
	<b>Customer Ref. No.</b> :PO
	<b>Letter Dated</b> :25-11-2022
s) Test Request Submitted By	Nabha Power Limited-Rajpura ( Punjab )
t) Manufactured By#	NA
u) Supplied By#	NA

### PART B : SUPPLIMENTARY INFORMATIONS

a.	Reference to sampling procedure, whenever applicable	: N/A
b.	Supporting documents for the measurement taken and results derived like graphs, tables, sketches and / or photographs as appropriate to test reports, if any	: N/A
c.	Deviation from the test methods as prescribed in relevant ISS/WORK Instruments, if any	: N/A

### Description

Description	Clear Coilourless Liquid					
S.No.	Parameters	Instrument	Method	Acceptable Limit	Permissible Limit	Result
	<b>Discipline : Chemical</b>					
	<b>Group : Water</b>					
1.	<b>Organoleptic &amp; Physical Parameter</b>					
a.	Colour (True Colour)	Visual	IS 3025 (Part 4) : 2021	5 Max.	15 Max.	2
b.	Odour	Organoleptic	IS: 3025 (P-5)-2018	Agreeable	Agreeable	Agreeable
c.	Turbidity (NTU)	Turbidity Meter	IS:3025(Part 10):1984(RA:2017)	1 Max.	5 Max.	< 0.5
d.	pH Value	pH Meter	IS: 3025 (Part-11): 2022	6.5-8.5	No relaxation	8.30

*V Saini*  
Vikrant  
29-12-2023  
Reviewer

*PremKumar*  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Document OF : 2501  
Page 3 of 3

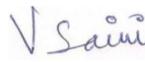
<b>Issued To</b> Nabha Power Limited Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala Rajpura			<b>Sample Reg. No.</b> :E01-2312190657 <b>Sample Reg. Date</b> :19-12-2023 <b>Report Date</b> :29-12-2023 <b>Report No.</b> :ICE-2312291109 <b>NABL ULR No.</b> :TC592623000014672F <b>Customer Ref. No.</b> :PO <b>Letter Dated</b> :25-11-2022			
e.	Total Dissolved Solids,(mg/L)	Gravimetric	IS: 3025 (P-16)-1984 (RA 2017)	500 Max.	2000 Max.	149
<b>2.</b>	<b>Parameters Concerning Undesirable Substances in excess amount</b>					
a.	Chloride(as Cl)(mg/L)	Titration	IS: 3025 (P-32)-1988 (RA2019)	250 Max.	1000 Max.	3
b.	Fluoride as F(mg/L)	Visual	IS: 3025 (P-60)-2008 (RA 2019)	1.0 Max.	1.5 Max.	BLQ(LOQ:0.1)
c.	Free Residual Chlorine, (mg/L)	Titration	IS: 3025 (P-26):2021	0.2 Min.	1.0 Max.	Not Applicable
d.	Iron (as Fe)(mg/L)	UV-Spectrophotometer	IS: 3025 (P-53)-2003 (RA 2019)	1.0 Max.	No relaxation	BLQ(LOQ:0.08)
e.	Nitrate as NO <sub>3</sub> (mg/L)	UV-Spectrophotometer	APHA 23rd Edition 2017, 4500 NO <sub>3</sub>	45 Max.	No Relaxation	2.4
f.	Sulphate(as SO <sub>4</sub> )(mg/L)	UV-Spectrophotometer	IS: 3025 (P-24/Sec-1)-2022	200 Max.	400 Max.	36.4
g.	Total Alkalinity(as CaCO <sub>3</sub> )(mg/L)	Titration	IS: 3025 (Part 23)-1986 (RA 2019)	200 Max.	600 Max.	40
h.	Total Hardness(as CaCO <sub>3</sub> ),(mg/L)	Titration	IS: 3025 (Part 21)-2009 (RA 2019)	200 Max.	600 Max.	105

#' represents Customer Defined Fields

**NOTE :** NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS :**The above referred sample of Water Sample (Marked Surface Water) conforms to BIS Specification IS:10500-2012 with upto date amdots with respect to the above tests.

\*\*\*\*\*End Of Report\*\*\*\*\*

  
Vikrant  
29-12-2023  
Reviewer

  
29-12-2023  
PremKumar  
[Authorized Signatory]

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## Test Report

Report No. : ICE-2404020091

ULR No. : TC592624000005905F



### Issued To :

#### Nabha Power Limited

Near Village: Nalash, P.B. No.28, Rajpura, Distt. Patiala  
Rajpura, 140401  
Punjab, India

Sample Registration No. : E01-2403130525

Sample Name : Water Sample (Marked Surface Water)

Sample Condition : Good

#### Sample Details (if any)

Sample Quantity : 2 Ltr 100ml

Packaging Mode : Packed in cans & in plastic container

Batch No./QR Code : NA

Date of Manufacture : NA

Sample Submission Type : Sampled by ITC /Jitesh kumar

Customer Reference : PO/25-11-2022

Any Other Information : Sample Collected by lab rep. Mr. Jitesh on 12.03.2024

Test Report as per : BIS Specification IS:10500-2012

Received On : 13-03-2024

Commenced On : 13-03-2024

Completed On : 29-03-2024

Date of Report : 02-04-2024

Grade : NA

Date of Expiry : NA

### Description: Liquid Sample With Suspended Particles

S. No.	Parameter	Measuring Unit	Instrument	Method	Result	Specification
<b>Discipline : Chemical</b>						
<b>Group : Water</b>						
<b>(I) Organoleptic &amp; Physical Parameter</b>						
1	pH Value	NA	pH Meter	IS: 3025 (Part-11): 2022	8.34	6.5-8.5 - No relaxation
2	Odour	NA	Organoleptic	IS: 3025 (P-5)- 2018	Agreeable	Agreeable
3	Turbidity	NTU	Turbidity Meter	IS:3025(Part 10):1984(RA:2017)	1.32	1 Max. - 5 Max.
4	Total Dissolved Solids	mg/l	Gravimetric	IS: 3025 (P-16)- 1984 (RA 2017)	137	500 Max. - 2000 Max.
5	Colour (True Colour)	Hazen	Visual Examination	IS 3025 (Part 4) : 2021	2	5 Max. - 15 Max.
<b>(II) Parameters Concerning Undesirable Substances in excess amount</b>						
1	Chloride(as Cl)	mg/l	Titration	IS: 3025 (P-32)- 1988 (RA2019)	4	250 Max. - 1000 Max.
2	Fluoride(as F)	mg/l	Visual Examination	IS: 3025 (P-60)- 2008 (RA 2019)	BLQ(LOQ:0.1)	1.0 Max. - 1.5 Max.
3	Free Residual Chlorine	mg/l	Titration	IS: 3025 (P-26): 2021	Not Applicable	0.2 Min. - 1.0 Max.
4	Iron(as Fe)	mg/l	UV- Spectrophotometer	IS: 3025 (P-53)- 2003 (RA 2019)	BLQ(LOQ:0.08)	1.0 Max. - No relaxation
5	Nitrate(as NO3)	mg/l	UV- Spectrophotometer	APHA 23rd Edition 2017, 4500	2	45 Max. - No Relaxation



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

Authorised by

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## Test Report

**Report No.** : ICE-2404020091

**ULR No.** : TC592624000005905F



				NO3		
6	Sulphate(as SO <sub>4</sub> )	mg/l	UV-Spectrophotometer	IS: 3025 (P-24/Sec-1)-2022	22.7	200 Max. - 400 Max.
7	Total Hardness(as CaCO <sub>3</sub> )	mg/l	Titration	IS: 3025 (Part 21)-2009 (RA 2019)	102	200 Max. - 600 Max.
8	Total Alkalinity(as CaCO <sub>3</sub> )	mg/l	Titration	IS: 3025 (Part 23)-1986 (RA 2019)	75	200 Max. - 600 Max.

**NOTE** : NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sampling Procedure: SOP/ITC/EW/030.

**REMARKS** : The above sample complies to IS 10500 : 2012 drinking water specification with respect to the above tested Parameters

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



02/04/2024

**Vikrant Saini**

Verified by



02/04/2024

**Prem Kumar**

Authorised by

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**Annexure-17**

**Epidemiology Study Report**

# Epidemiological Study Around Rajpura Power Project

**Nabha Power Limited Village: Nalash,  
Tehsil: Rajpura, District: Patiala**



Report Prepared by

**EMTRC Consultants Private Limited**

Tower 5, Flat 102, CWG Village, Delhi 110092

Website- [www.emtrc.in](http://www.emtrc.in), email- [emtrcijkm@gmail.com](mailto:emtrcijkm@gmail.com)

**JANUARY 2023**

31-01-2023

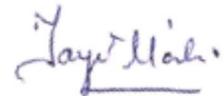
## CERTIFICATE

Nabha Power Limited commissioned Epidemiological Study around its 2 x 700 MW Power Limited located at Village Nalash, Tehsil Rajpura, District Patiala.

The primary objective of the Epidemiological Study is to evaluate the nature of environmental pollutants, quantify and assess their effects on human health, generate health data of by collecting representative samples of population residing in the area and suggest corrective measures to improve health status of population under study area.

Five locations were selected for the study; upwind direction which is unaffected by the power plant, downwind location and locations having maximum ground level concentrations with severe impact. Samples of groundwater, surface water, soil, cereals and vegetables were collected from the study area and analysed at EMTRC Lab. Ambient air quality data of the study area was obtained from NPL. Human health survey was done in December 2022 by organizing camps at 5 locations around the power project.

We wish to place on record our sincere gratitude and thanks to the Dr Ashish Garg (MBBS, MD-Medicine) other and Interns of Neelam Hospital, Rajpura and Mr. Nitin Pandey (CSR Department-NPL) for organizing the medical camps and doing the health check-ups of resident population as per the standard protocol. We are also grateful to Mr. Rajiv Bhandari, (AGM - EHS) and Mr. Hemant Purushottam Nimkar (Sr. Manager - EHS) for all cooperation received during the study period. Special thanks are to Mr Suresh Kumar Narang, CEO for his constant oversight and encouragement during the course of this study.



Dr. JK MOITRA  
Project Coordinator

## ABBREVIATION

ACGIH - American Conference of Governmental Industrial Hygienists  
CPCB - Central Pollution Control Board  
COPC - Chemical of Potential Concern  
COPD - Chronic Obstructive Pulmonary Disorder  
CADD - Chronic Average Daily Dose (mg/kg-day)  
HSDB - Hazardous Substances Data Bank  
HQ - Hazard Quotient  
HI - Hazard Index  
IRIS - Integrated Risk Information System of USEPA  
LOAEL - Lowest Observable Adverse Effect Level  
LADD - Lifetime Average Daily Dose (mg/kg-day)  
mg/l - Milligram per liter  
 $\mu\text{g}/\text{m}^3$  - Milligram per Cubic Meter (of air)  
 $\mu\text{g}$  - Microgram (one-millionth of a gram)  
MOEF - Ministry of Environment & Forests (Govt of India)  
NOAEL - No Observable Adverse Effect Level  
NIOSH - National Institute for Occupational Safety and Health  
PM<sub>2.5</sub> - Particulate Matter up to 2.5 micrometer size  
PM<sub>10</sub> - Particulate Matter up to 10 micrometer size  
ppb - Parts per Billion  
ppm - Parts per Million  
RME - Reasonable Maximum Exposure (Upper Percentile)  
RfD - Reference Dose  
STEL - Short Term Exposure Limit  
TWA - Time Weighted Average  
UNEP - United Nations Environment Program  
USEPA - United States Environmental Protection Agency  
WHO - World Health Organization

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## EXECUTIVE SUMMARY

Nabha Power Limited operates the 2x700 MW coal based thermal power plant at village Nalash near Rajpura town in Punjab. It is the first power plant to be owned and operated by Larsen & Toubro Limited. The power generated from this plant is contracted with Punjab State Power Corporation Limited for a period of 25 years under a Power Purchase Agreement (PPA). The plant is built on supercritical technology of Mitsubishi Heavy Industries, Japan (now Mitsubishi Hitachi Power Systems).

The plant sources its fuel from South Eastern Coalfields Limited (a subsidiary of Coal India Limited) under a 20-year Fuel Supply Agreement (FSA). Bhakra-Nangal distributary is the perennial source of water for the plant under an allocation by the state irrigation department. The plant is operated by an in-house experienced team of operations and maintenance professionals.

Commercial operation dates (COD) for Unit-1 and Unit-2 were February 1 and July 10, 2014, respectively.

Nabha Power Limited, being a proactive and environmentally responsible organization, decided to generate the existing health status of human population vis-à-vis baseline environmental conditions around the power plant. It initiated Epidemiological Study by awarding the work to EMTRC Consultants Private Limited, Delhi.

The study includes the following objectives:

- To quantify environmental pollutant and its effects on human health.
- To generate health data of population in and around the plant through Epidemiological study on representative number of population.
- To analyse the health effects of individual pollutants.
- To suggest corrective measures to improve health status of population under study area.

Coal fired Thermal Power Plants emits several air pollutants that are originally present in coal. Pollutants like particulate matter containing metals, oxides of sulphur, oxides of nitrogen, carbon monoxide, and organic compounds are generated during coal burning. These air pollutants are

reported to cause a wide range of adverse health effects. Environmental impacts of power plant air pollutants emissions include adverse health, acidification of the environment, bioaccumulation of toxic metals, and contamination of water bodies and reduced visibility due to haze.

Coal is pulverized in coal mills to size less than 200 microns. The pulverized coal is fed to steam generator (Boiler) for combustion and generation of steam. The steam so generated is fed in to turbine, which converts the thermal energy of steam into mechanical energy and drives the generator for producing electricity. Exhaust steam from the turbine is condensed by means of a condenser. Thus the water evaporated in the boiler is conserved in a closed cycle. The products of combustion are exhausted from the boiler through a chimney into the atmosphere after cleaning through ESP. The ash from the boiler furnace bottom is disposed of by means of wet disposal system. The fly ash arrested in the Electrostatic Precipitators is transported pneumatically to fly ash silos. The fly ash is utilized for brick manufacturing; mines back filling, low land filling, etc. Unutilized portion of the fly ash is disposed of in slurry form in ash dyke.

**Wind Profiles:** Dispersion profile of air pollutants being emitted from a chimney depends upon the wind direction and wind speed. Historical met data of the area was collected from Climatological Tables published by the India Meteorological Department (1980-2010). The predominant wind direction is from North-West during all the months except monsoon season. During monsoon season the wind flows from South East. The wind direction was used to find out the predominant wind direction, most dominant and least dominant wind directions. Accordingly camps for health study was established.

**Impacted and Unimpacted Areas around the Power Plant:** Name of impacted and non-impacted villages around NPL are shown below:

S.N	Name of Villages	Distance & Direction from NPL	Impacted/ Non-impacted
1	Suralkalan	1.7 Km, West	Slightly Impacted
2	Dabhalikalan	3.8 Km, South	Moderately Impacted
3	Dadumajra	3.5 Km, North	Slightly impacted
4	Nalash	2.0 Km, South East	Severely Impacted
5	Bakshiwala	4.5 Km, South West	Non-Impacted

**Sampling Locations:** Ambient air quality data around the power plant was generated by NPL over the last few years. These data were used to analyse and assess the impact. Samples of groundwater and soil was collected from surrounding villages. Surface water sample was taken from the Bhakra distributary / canal and analysed. This canal water is used for irrigation by the farmers of the area. Samples of locally grown cereals and vegetables, milk and grass were collected from the area and analysed for heavy metals. The sampling locations represented the impacted area and non-impacted area around the power plant. Samples were collected in October 2022.

**Ambient Air Quality:** Ambient air quality monitoring was done inside & outside the plant boundary at seven locations. Monitoring was done round the year for 24-hours, one sample season. Following pollutants were monitored: PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>2</sub>, SO<sub>2</sub>, CO, Pb, As, Ni (in PM<sub>10</sub>), NH<sub>3</sub>, O<sub>3</sub>, benzene, Benzo-a-pyrene. Results for the year 2019 to 2022 were provided by Nabha Power Limited. The results of all parameters are well within the NAAQS.

Sr. No	Date		Parameters (24-hour average)				
			PM <sub>10</sub> , µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
1	2019	Minimum	68	38	8	17	0.58
		Maximum	82	47	17	33	0.95
		<b>Average</b>	<b>74</b>	<b>42</b>	<b>13</b>	<b>26</b>	<b>0.71</b>
2	2020	Minimum	61	30	6	9	0.55
		Maximum	96	54	15	31	1.4
		<b>Average</b>	<b>77</b>	<b>42</b>	<b>11</b>	<b>22</b>	<b>0.85</b>
3	2021	Minimum	68	31	6	10	1
		Maximum	97	57	16	33	3.6
		<b>Average</b>	<b>86</b>	<b>43</b>	<b>10</b>	<b>17</b>	<b>1.65</b>
4	2022	Minimum	80	35	5	10	1.1
		Maximum	90	43	12	22	1.4
		<b>Average</b>	<b>84</b>	<b>39</b>	<b>8</b>	<b>14</b>	<b>1.26</b>
<b>National Standard</b>			<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>	<b>2</b>

**Note :** Pb, As, Ni, NH<sub>3</sub>, O<sub>3</sub>, benzene, Benzo-a-pyrene were found to be not detectable.

The results are graphically shown below:

**Ground Water Quality:** Ground water is the main source of drinking and irrigation. Nine ground water samples were collected from villages located around the plant. The water samples were analysed for physicochemical and biological parameters as per the Standard Methods (APHA). The results were compared with the drinking water quality standard prescribed by the Bureau of Indian Standards (IS: 10500:2012). The pH of the samples was found to be alkaline (7.41 - 8.18). TDS values of the sample ranges between 150 - 1380 mg/l. Hardness content of the sample ranges between 52 - 440 mg/l. Calcium values of the samples ranges between 16 - 120 mg/l. Magnesium values of the samples ranges between 2.9 - 34 mg/l. Chloride values of the samples ranges between 35 - 280 mg/l. The ground water did not show any oil or bacterial contamination. Heavy metals like Pb, Cu, Mn, Cr, Ni, Cd, Hg, As, and Se were found to be below the detectable limit.

**Surface Water Quality:** One canal water sample was collected. The sample was analyzed for physico-chemical and biological parameters as per Standard Methods (APHA). Hg, As, Pb and Cr were found to be below the detectable limit. The water quality is fit for drinking after conventional treatment and irrigation.

**Soil Quality:** Nine soil samples were collected from agriculture fields around the plant. The samples were analysed for metallic constituents. The results are as follows: Lead <0.3 mg/kg, Nickel 6.2 to 8.5 mg/kg, Cadmium <0.1 mg/kg, Chromium <0.2 mg/kg, Arsenic < 0.2 mg/kg and Mercury <0.1 mg/kg. Soils are of mineral origin and metals are always present in traces, which acts as micronutrients for plant growth and health. The values were found to be normal.

**Heavy Metals in Food Samples:** Rice, dal, wheat and maize and locally grown vegetables are the staple food of the people of this area. Samples of locally grown rice, dal, wheat, jowar, gram, pulses, potato, onion, tomato were collected from the market. No heavy metals (arsenic, mercury, cadmium, chromium, lead and nickel) were not detectable in the food samples (Below the detectable limit of 0.1 mg/kg).

**Human Health Survey:** In order to develop health records and draw profile of health status for target population groups, health survey was done at 5 locations around the plant. These villages covered the impacted area, non-impact area and control area. Health check-up was done for 309 residents, who are exposed to the existing environmental conditions for more than 5 years.

### Summary of Health Checkup Done at 5 Locations Around NPL (in %)

	Name of Location	Over Weight	Cough	High BP	Headache	Other Noted Health Problems
1	Surkalan Slightly impacted	28	13	35	19	Knee joint pain in elderly
2	Dabhali kalan Moderately impacted	29	10	58	23	-
3	Dadumajra Slightly impacted	16	2	28	10	Knee joint pain in elderly
4	Nalash Severely impacted	20	6	61	14	-
5	Bakshiwala Non-Impacted -Control)	23	7	57	26	-

### Conclusion

- a. Air Environment: The ambient air quality of the impacted and non-impacted areas is found to be well-within the prescribed National Standards.
- b. Water Environment: The ground water samples were found to meet the BIS standards at all locations. The surface water sample were found to meet the Best Designated Use Criteria 'C' of CPCB (fit for drinking after conventional treatment and irrigation).
- c. Soil Environment: Lead, nickel, arsenic, mercury, cobalt, cadmium, chromium levels were found to be within the normal level. pH was found to be moderately alkaline, Organic Matter was found to be sufficient and Conductivity was found to be average in all soil samples.
- d. Impact on Human Health: Human Health Survey: Human health profiling was done for 309 resident people of five villages, who are exposed to the existing environment for more than seven years. High BP was found in majority of male adults; Nalash - 61%, Dhabali - 58% Bakshiwala - 57% and Surkalan - 35%. Major complaints of elderly people in Surkalan and Dadumajra were related to pain in knee joints.

No cases of respiratory disorders linked to air pollution like Bronchitis, Asthma or Chronic Obstructive Pulmonary Disorder were found in the people. No disease or any chronic condition that could be related to air pollution / effluent discharges from coal based power plant has been observed in the population of the study area. None of the people in the study area reported any serious health problem such as Cancer, Gross Neurologic, Hepatic or Renal Damage and Congenital Abnormality.

## CHAPTER 1: INTRODUCTION

### 1.1 Introduction of Epidemiological Study

Epidemiological study describes the nature and significance of the potential short-term (i.e., acute) and long-term (i.e., chronic) health risks posed to people exposed to the Chemicals of Potential Concern (COPC). The primary objective of the EPIDEMIOLOGICAL is to describe the nature and significance of potential health risks to humans from COPC. EPIDEMIOLOGICAL Methodology developed by United States Environmental Protection Agency (USEPA) is widely followed all over the world. The main components of the risk assessment methodology include the following:

**Problem Formulation:** Identification of Chemicals of Potential Concern (COPC), characterization of receptors, and identification of exposure pathways. The COPC identified in ambient air around coal fired power plant are BAP, Pb, Ni and As in PM<sub>10</sub>. Profile of the COPCs are given in Appendix.

**Toxicity Assessment:** Identification of potential adverse effects of COPC and determination of the maximum **dose** that are likely to result in adverse health effects (exposure limits, EL);

**Exposure Assessment:** Quantification of the total dose of COPC received by human receptors *via* all relevant exposure pathways;

**Risk Characterization:** Comparison of estimated exposures with Exposure Limits to provide an indication of whether unacceptable risks are likely to exist in defined scenarios.

Exposure pathways describe the routes through which contaminants in the environment (soil, air water etc.) come into contact with receptors of concern. These pathways may require direct contact between receptors and media of concern (e.g., inhalation of air), or may rely on indirect pathways which require movement of the chemical in the environment (e.g., transfer of chemicals from soil into vegetables or meat and then to receptors through food consumption). Although human behavioral and physical characteristics will vary, it was assumed that all human receptors are subjected to the same exposure pathways. COPC present in air emissions can descend to ground level where human receptors can be exposed *via* the direct inhalation

exposure pathway. COPC in air emissions may be transported to other media where exposure may occur. Possible “indirect” exposure pathways include ‘ingestion’ of COPC in soil dust, and consumption of agricultural products, meat, fish, etc. Environmental media that are potentially affected by discharges from power plant includes:

- Ambient air through direct emission and dispersion as vapor or suspended particulate;
- Surface soils, through deposition from the air column;
- Fish through the aquatic food chain;
- Vegetation, including home garden produce, crops, as well as natural vegetation, both through direct deposition, and indirectly *via* uptake from soil;
- Agricultural products through uptake from soils, vegetation and water;
- Drinking groundwater

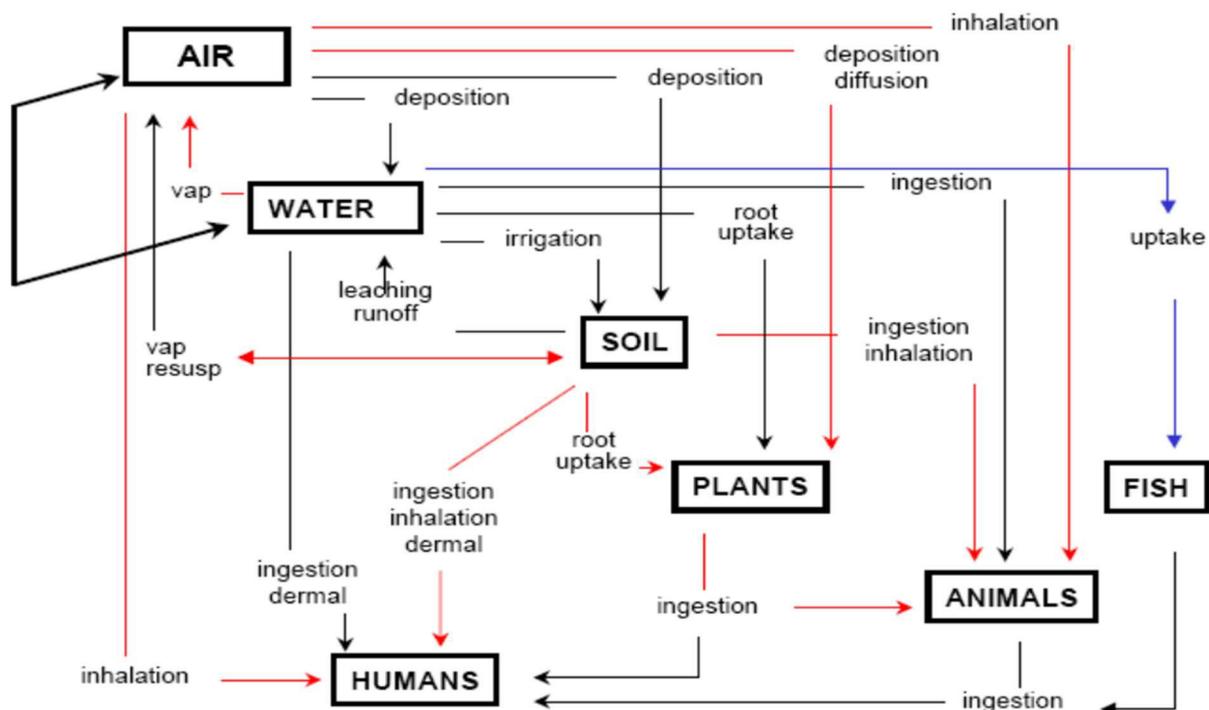


Figure 1: Typical Human Exposure Pathways from Power Plant Emissions

## 1.2 Concept of Epidemiological Study

Epidemiological is the process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future. Epidemiological addresses following things:

- Types of health problems may be caused by environmental stressors
- Chance that people will experience health problems when exposed to different levels of stressors
- The level below which some stressors don't pose a human health risk
- Environmental stressors that people are exposed to and at what levels and for how long
- People who likely to be susceptible to environmental stressors because of factors such as age, genetics, pre-existing health conditions, ethnic practices, gender, etc.
- People more likely to be exposed to environmental stressors because of factors such as where they work, where they play, what they like to eat, etc.

These issues help decision makers to understand the possible human health risks from environmental media. An exposure assessment is the quantitative or qualitative evaluation of that contact; it describes the intensity, frequency, and duration of contact, and often evaluates the rates at which the chemical crosses the boundary (chemical intake or uptake rates), the route by which it crosses the boundary (exposure route; e.g., dermal, oral, or respiratory), and the resulting amount of the chemical that actually crosses the boundary (a dose) and the amount absorbed (internal dose). Planning and scoping is must to make judgments about major risk assessments.

The following structure focuses on Epidemiological:

Who/ What/ Where is at risk?

- Individual
- General population
- Children, teenagers, pregnant/nursing women
- Population subgroups – highly susceptible (for example, due to asthma, genetics, etc.) and/or highly exposed (based on geographic area, gender, racial or ethnic group, or economic status)

What is the environmental hazard of concern?

- Chemicals (single or multiple/cumulative risk)

- Physical (dust, heat)
- Microbiological or biological
- Nutritional (for example, diet, fitness, or metabolic state)
- Socio-Economic (for example, access to health care)

Where do these environmental hazards come from?

- Point sources (for example, smoke or water discharge from a factory);
- Non-point sources (for example, automobile exhaust)

How does exposure occur?

- Pathways (recognizing that one or more may be involved)
  - Air
  - Surface Water
  - Groundwater
  - Soil
  - Food
  - Non-food consumer products, pharmaceuticals

Routes (and related human activities that lead to exposure)

- Ingestion (both food and water)
- Contact with skin
- Inhalation
- Non-dietary ingestion (for example, “hand-to-mouth” behavior)

What does the body do with the environmental hazard and how is this impacted by factors such as age, race, sex, genetics, etc.?)

- Absorption – does the body take up the environmental hazard
- Distribution – does the environmental hazard travel throughout the body or does it stay in one place?
- Metabolism – does the body breakdown the environmental hazard?
- Excretion – how does the body get rid of it?

What are the health effects?

- Example of some health effects include cancer, heart disease, liver disease and nerve disease.

How long does it take for an environmental hazard to cause a toxic effect? Does it matter when in a lifetime exposure occurs?

- How long?
  - Acute – right away or within a few hours to a day
  - Sub chronic – weeks or months (for humans generally less than 10% of their lifespan)
  - Chronic – a significant part of a lifetime or a lifetime (for humans at least seven years)
  - Intermittent
- Timing - Is there a critical time during a lifetime when a chemical is most toxic (e.g., fetal development, childhood, during aging)?

### 1.3 Objectives and Scope of the Study

The study includes the following objectives:

- To access the information through quantifying environmental pollutant and its effects on human health
- To evaluate the nature of pollutants.
- To estimate physico-chemical load of contaminants.
- To generate health data of population in and around the plant through Epidemiological study on representative number of population and livestock samples
- To suggest corrective measures to improve health status of population in the study area.

### 1.4 Study Methodology

- Identification of the plant boundary, location of plant equipment, stack, ash pond and the area of study, identification of human settlements in the study area.
- Quantify the pollutants present in different environmental media to which people are exposed, like ambient air, ground water and surface water, soil and food grown on the soil.
- Obtain information on diet, living and working conditions, income, time-activity pattern,
- Generate health data of representative population to establish the baseline and estimate the health risk
- Suggest preventive and corrective measures to improve the environment, if any evidence of adverse impact of human population is observed during the study.

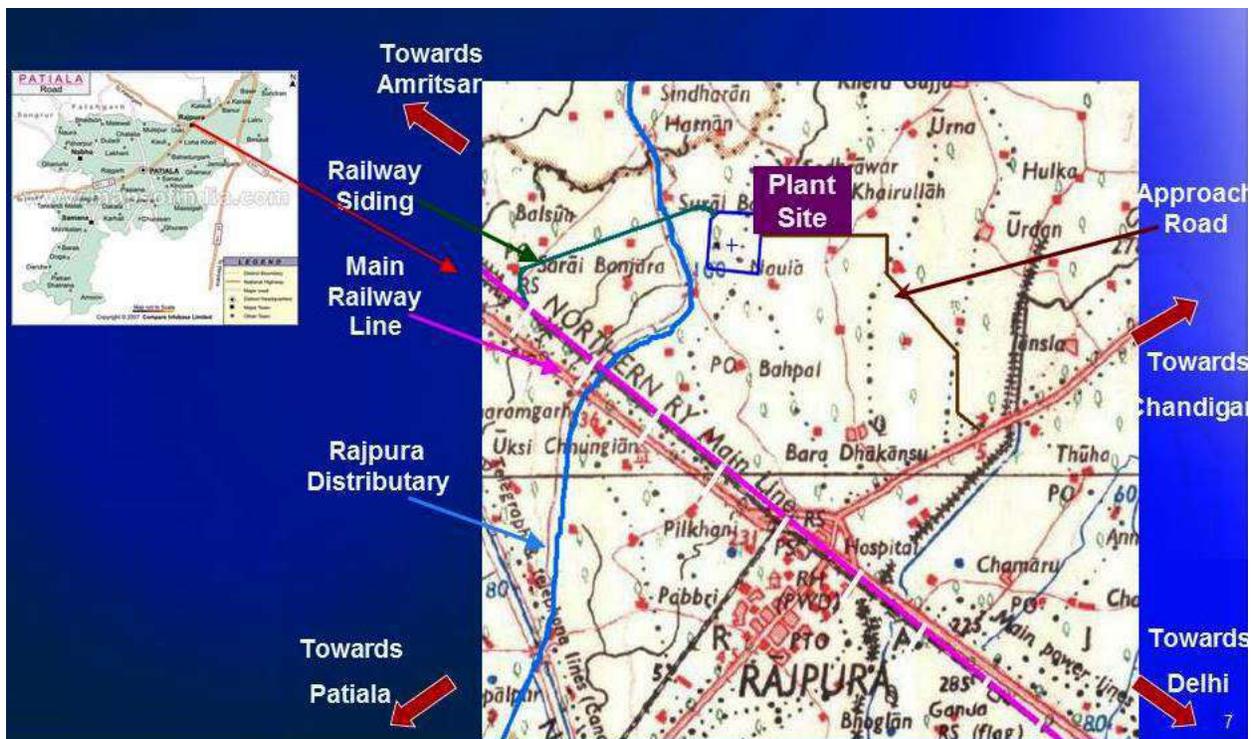
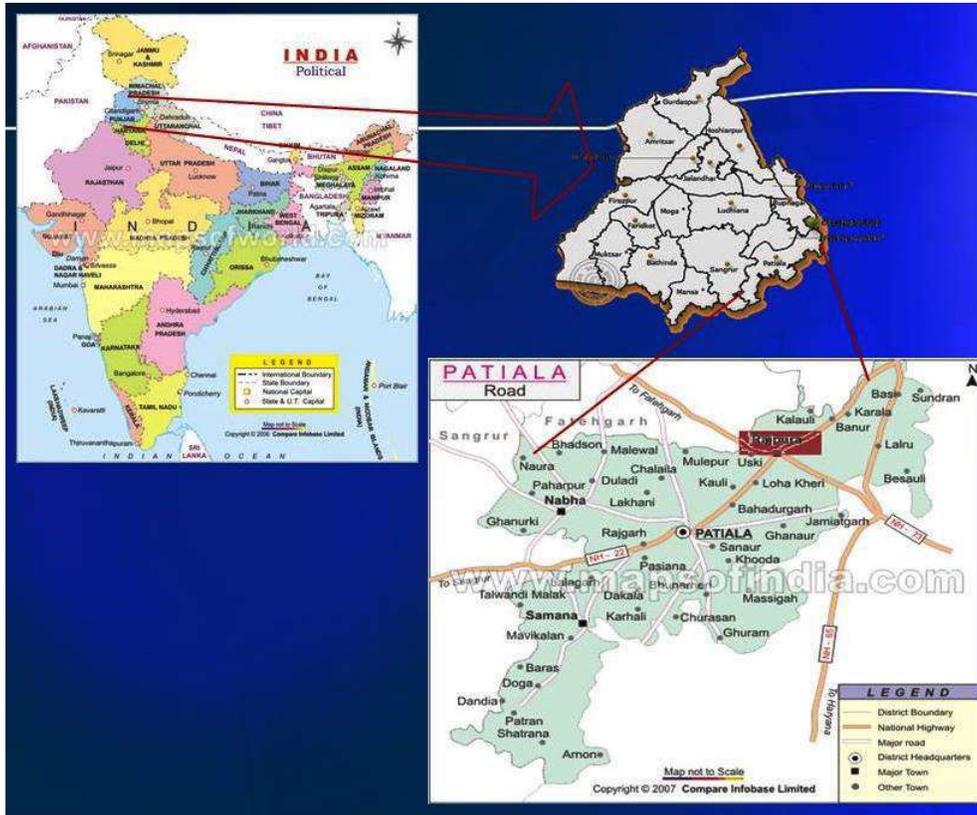


Figure 2 : Location Map

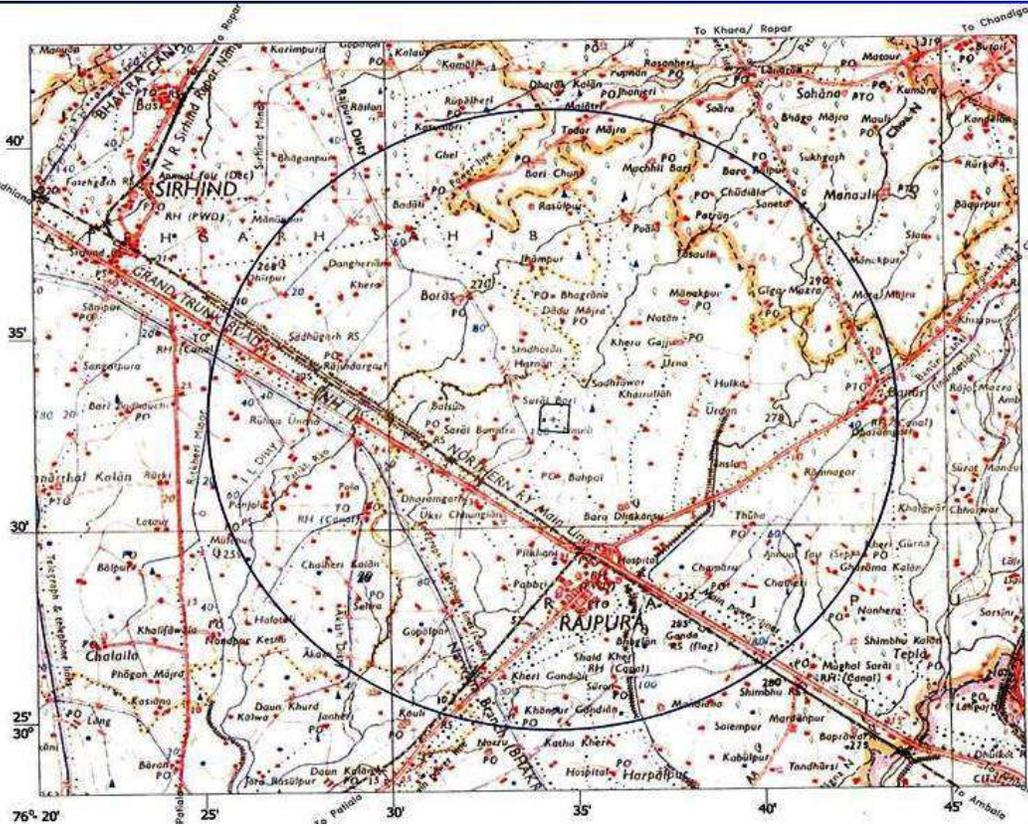


Figure 3: Location of the Power Plant on Survey of India Toposheet



Figure 4: Google Image of Rajpura Power Project

## CHAPTER 2 : BASELINE ENVIRONMENTAL STATUS

### 2.1 Meteorology

Air emissions will follow the wind direction, therefore identification of impacted area and non-impacted around the source is important. The height of emission release governs the location of impact point. Maximum impact from an elevated source is observed at a location which is 6 to 10 times the height of the source in downwind direction. Historical Meteorological Data were obtained from the Climatological Tables of IMD (Ambala)

**Table 1 Meteorological Data of Ambala (Source-IMD-1950 to 2010)**

Month	Temperature (deg C) daily		Relative Humidity, %		Rainfall (mm)	Wind speed kmph	Pre-dominant wind direction (from)	Cloud cover (Oktas)
	Max	Min	Max	Min				
January	20.4	6.6	80	55	38.5	5.9	NW, W, SE	1.9
February	23.3	9.2	72	48	28.4	6.8	NW, W, SE	1.8
March	29.0	13.9	64	41	29.5	7.9	NW, W, SE	1.6
April	35.8	19.6	47	28	6.1	7.4	NW, W, SE	1.1
May	39.6	23.8	41	26	19.3	7.9	SE, W, NW	1.1
June	39.4	26.6	55	38	73.2	8.6	SE, W, NW	1.8
July	34.8	25.7	80	64	267.2	7.9	SE, W, NW	3.9
August	33.3	25.1	84	70	267.2	6.2	SE, W, NW	3.9
September	34.0	23.6	79	61	161.3	5.4	NW, SE	1.7
October	32.6	18.1	69	46	32.9	5.2	NW, SE	0.6
November	28.0	11.1	70	45	9.3	5.5	NW, SE	0.7
December	22.5	7.4	79	52	13.2	5.1	NW, SE	1.4
Annual	31.1	17.6	68	48	961.4	6.7	NW, SE	1.8

### Name of Impacted and Non-impacted villages from NPL Emissions

S.N	Name of Villages	Distance & Direction from NPL	Impacted/ Non-impacted
1	Suralkalan	1.7 Km, West	Slightly Impacted
2	Dabhalikalan	3.8 Km, South	Moderately Impacted
3	Dadumajra	3.5 Km, North	Slightly impacted
4	Nalash	2.0 Km, South East	Severely Impacted
5	Bakshiwala	4.5 Km, South West	Non-Impacted

**2.2 Ambient Air Quality:** Ambient air quality monitoring inside & outside the plant boundary were done at seven locations. Monitoring was done for 24-hours for PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>2</sub>, SO<sub>2</sub>, CO, Pb, As, Ni (in PM<sub>10</sub>), NH<sub>3</sub>, O<sub>3</sub>, Benzene, Benzo-a-pyrene. Results of monsoon and post-

monsoon months were provided by Nabha Power Limited. The results of all parameters are well within the NAAQS.

**Table:2 Ambient Air Quality inside & outside the Plant Boundary (24-h avg in  $\mu\text{g}/\text{m}^3$ )**

Sr. No	Monitoring Location	Date	Parameters				
			PM <sub>10</sub> $\mu\text{g}/\text{m}^3$	PM <sub>2.5</sub> $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$	CO mg/m <sup>3</sup>
1	Dabhali	20-06-2019	70	38	12	22	0.61
		10-09-2019	72	40	12	25	0.59
		29-11-2019	72	41	10	21	0.95
2	Salempura	20-06-2019	71	40	12	26	0.65
		10-09-2019	70	41	14	27	0.65
		29-11-2019	70	39	8	17	0.93
3	Dadumajra	20-06-2019	73	42	12	23	0.67
		10-09-2019	73	38	13	25	0.62
		29-11-2019	68	38	11	23	0.88
4	Near Storm Water Sump	18-06-2019	71	40	13	24	0.68
		10-09-2019	77	46	17	29	0.73
		28-11-2019	71	39	12	26	0.66
5	Near Loco Shed	18-06-2019	79	47	12	26	0.66
		10-09-2019	77	46	15	31	0.71
		28-11-2019	79	42	14	29	0.71
6	Near Switch Yard	18-06-2019	76	43	15	26	0.69
		10-09-2019	78	46	16	30	0.69
		28-11-2019	75	44	16	33	0.74
7	Near NDCT	18-06-2019	77	43	14	26	0.58
		10-09-2019	74	41	14	27	0.76
		28-11-2019	82	46	15	30	0.70
		<b>Min</b>	68	38	8	17	0.58
		<b>Max</b>	82	47	17	33	0.95
		<b>Average</b>	<b>74</b>	<b>42</b>	<b>13</b>	<b>26</b>	<b>0.71</b>
<b>National Standard</b>			<b>100</b> (24-hrs average)	<b>60</b> (24-hrs average)	<b>80</b> (24-hrs average)	<b>80</b> (24-hr average)	<b>4</b> (1-hrs average)

Source : Eco Laboratories & Consultants Pvt. Ltd. (Sector-74, Mohali, Punjab-160071)

**Cont.....Ambient Air Quality inside & outside the Plant Boundary (24-h avg in  $\mu\text{g}/\text{m}^3$ )**

Sr. No	Monitoring Location	Date	Parameters				
			PM <sub>10</sub> $\mu\text{g}/\text{m}^3$	PM <sub>2.5</sub> $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$	CO mg/m <sup>3</sup>
1	Dabhali	13-03-2020	66	30	12	23	0.77
		24-06-2020	64	33	9	19	0.56
		11-09-2020	70	38	12	28	0.61
		23-12-2020	93	51	10	16	1.2
2	Salempura	13-03-2020	72	38	9	19	0.73
		24-06-2020	67	36	8	17	0.64
		11-09-2020	77	44	11	26	0.65
		23-12-2020	95	54	13	18	1.3

3	Dadumajra	13-03-2020	70	36	9	25	0.76
		24-06-2020	66	34	7	19	0.60
		11-09-2020	75	43	9	23	0.69
		23-12-2020	96	54	11	19	1.3
4	Near Storm Water Sump	13-03-2020	65	36	11	24	0.60
		24-06-2020	61	30	8	18	0.55
		11-09-2020	75	42	10	23	0.73
		22-12-2020	88	43	8	12	1.2
5	Near Loco Shed	13-03-2020	75	40	12	30	0.68
		24-06-2020	71	39	10	22	0.63
		11-09-2020	79	47	13	26	0.64
		21-12-2020	88	49	11	19	1.3
6	Near Switch Yard	13-03-2020	73	41	15	31	0.68
		24-06-2020	66	35	9	20	0.58
		11-09-2020	72	40	13	27	0.71
		22-12-2020	91	46	6	9	1.3
7	Near NDCT	13-03-2020	78	43	13	28	0.63
		24-06-2020	69	38	11	25	0.61
		11-09-2020	72	40	12	25	0.68
		21-12-2020	89	46	10	14	1.4
		<b>Min</b>	61	30	6	9	0.55
		<b>Max</b>	96	54	15	31	1.4
		<b>Average</b>	<b>77</b>	<b>42</b>	<b>11</b>	<b>22</b>	<b>0.85</b>
<b>National Standard</b>			<b>100</b> <b>(24-hrs average)</b>	<b>60</b> <b>(24-hrs average)</b>	<b>80</b> <b>(24-hrs average)</b>	<b>80</b> <b>(24-hr average)</b>	<b>4</b> <b>(1-hrs average)</b>

Source : Eco Laboratories & Consultants Pvt. Ltd. (Sector-74, Mohali, Punjab-160071)  
Inter stellar Testing Centre Pvt. Ltd. (Industrial Area Phase-1, Panchkula-134109, Haryana)

**Cont.....Ambient Air Quality inside & outside the Plant Boundary (24-h avg in  $\mu\text{g}/\text{m}^3$ )**

Sr. No	Monitoring Location	Date	Parameters				
			PM <sub>10</sub> $\mu\text{g}/\text{m}^3$	PM <sub>2.5</sub> $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$	CO $\text{mg}/\text{m}^3$
1	Dabhali	13-03-2021	86	43	10	19	1.3
		19-06-2021	65	34	17	20	1.3
		10-09-2021	82	37	10	17	1.8
		17-12-2021	90	51	8	13	1.0
2	Salempura	13-03-2021	92	48	12	17	1.4
		19-06-2021	73	38	16	19	1.4
		10-09-2021	87	35	9	14	1.4
		17-12-2021	92	48	13	27	1.2
3	Dadumajra	13-03-2021	89	44	10	15	1.2
		19-06-2021	68	31	14	18	1.5
		10-09-2021	93	40	12	18	2.5
		17-12-2021	94	53	12	19	1.1
4	Near Storm Water Sump	10-03-2021	84	43	8	12	1.3
		07-09-2021	86	40	12	17	1.0

5	Near Loco Shed	15-12-2021	94	55	12	20	1.3
		10-03-2021	81	40	9	13	1.3
		07-09-2021	81	37	8	14	2.2
		15-12-2021	89	49	8	13	1.5
6	Near Switch Yard	10-03-2021	88	45	6	10	1.4
		07-09-2021	85	39	6	10	3.6
		15-12-2021	97	57	16	33	1.4
7	Near NDCT	10-03-2021	87	40	6	10	1.2
		07-09-2021	89	42	11	18	2.6
		<b>Min</b>	68	31	6	10	1
		<b>Max</b>	97	57	16	33	3.6
		<b>Average</b>	<b>86</b>	<b>43</b>	<b>10</b>	<b>17</b>	<b>1.65</b>
<b>National Standard</b>			<b>100</b> (24-hrs average)	<b>60</b> (24-hrs average)	<b>80</b> (24-hrs average)	<b>80</b> (24-hr average)	<b>4</b> (1-hrs average)

Source : Interstellar Testing Centre Pvt. Ltd. (Industrial Area Phase-1, Panchkula-134109, Haryana)

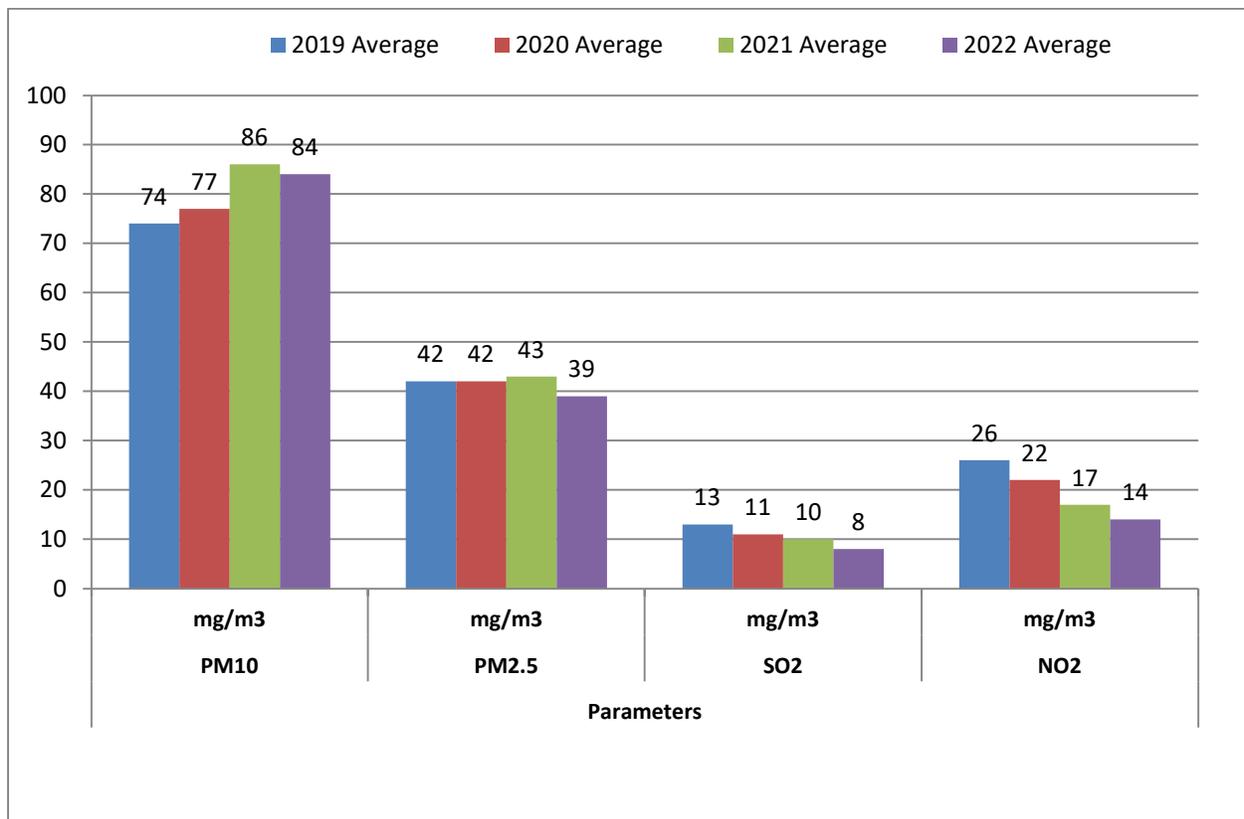
**Cont.....Ambient Air Quality inside & outside the Plant Boundary (24-h avg in  $\mu\text{g}/\text{m}^3$ )**

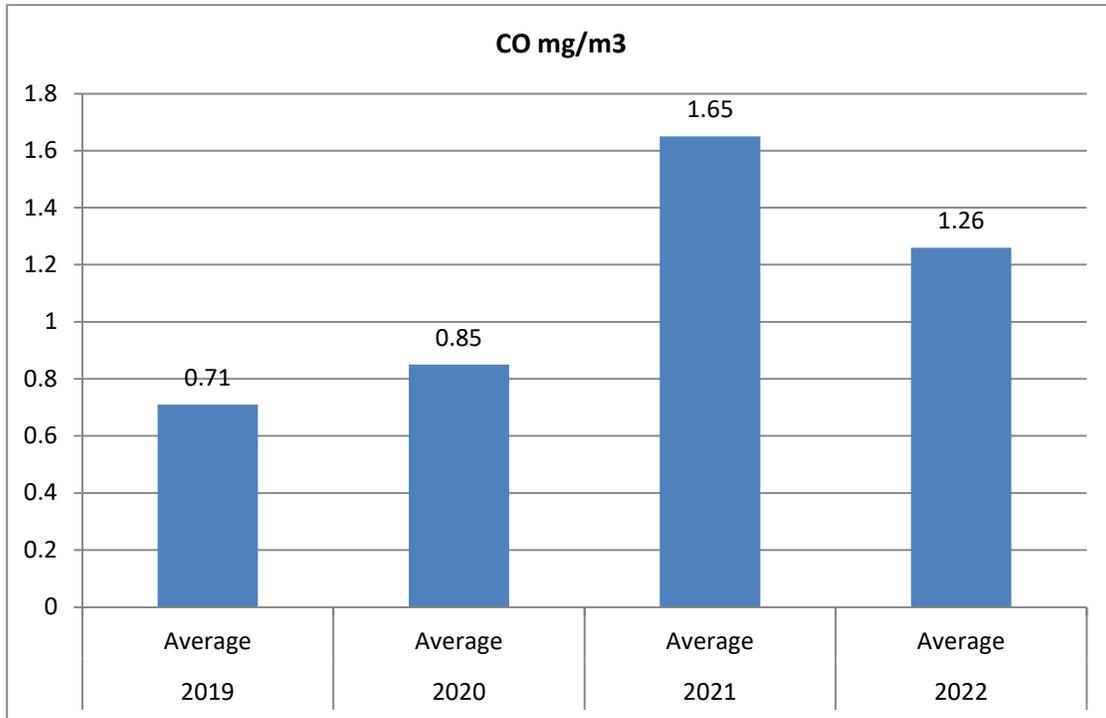
Sr. No	Monitoring Location	Date	Parameters				
			PM <sub>10</sub> $\mu\text{g}/\text{m}^3$	PM <sub>2.5</sub> $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$	CO mg/m <sup>3</sup>
1	Dabhali	16-06-2022	87	40	12	22	1.3
		10-09-2022	83	35	7	10	1.1
2	Salempura	16-06-2022	83	37	8	15	1.3
		10-09-2022	90	41	10	15	1.3
3	Dadumajra	16-06-2022	83	41	10	19	1.2
		10-09-2022	86	37	5	10	1.2
4	Near Storm Water Sump	13-06-2022	87	43	8	13	1.4
		08-09-2022	81	36	7	10	1.4
5	Near Loco Shed	13-06-2022	84	43	10	15	1.3
		08-09-2022	85	38	6	12	1.3
6	Near Switch Yard	13-06-2022	83	42	6	11	1.3
		08-09-2022	86	39	8	13	1.1
7	Near NDCT	13-06-2022	80	38	12	22	1.4
		08-09-2022	82	37	7	11	1.1
		<b>Min</b>	80	35	5	10	1.1
		<b>Max</b>	90	43	12	22	1.4
		<b>Average</b>	<b>84</b>	<b>39</b>	<b>8</b>	<b>14</b>	<b>1.26</b>
<b>National Standard</b>			<b>100</b> (24-hrs average)	<b>60</b> (24-hrs average)	<b>80</b> (24-hrs average)	<b>80</b> (24-hr average)	<b>4</b> (1-hrs average)

Source : Inter stellar Testing Centre Pvt. Ltd. (Industrial Area Phase-1, Panchkula-134109, Haryana)

**Cont.....Ambient Air Quality inside & outside the Plant Boundary (24-h avg in  $\mu\text{g}/\text{m}^3$ )**

Sr. No	Date		Parameters				
			PM <sub>10</sub> $\mu\text{g}/\text{m}^3$	PM <sub>2.5</sub> $\mu\text{g}/\text{m}^3$	SO <sub>2</sub> $\mu\text{g}/\text{m}^3$	NO <sub>2</sub> $\mu\text{g}/\text{m}^3$	CO $\text{mg}/\text{m}^3$
1	2019	Minimum	68	38	8	17	0.58
		Maximum	82	47	17	33	0.95
		<b>Average</b>	<b>74</b>	<b>42</b>	<b>13</b>	<b>26</b>	<b>0.71</b>
2	2020	Minimum	61	30	6	9	0.55
		Maximum	96	54	15	31	1.4
		<b>Average</b>	<b>77</b>	<b>42</b>	<b>11</b>	<b>22</b>	<b>0.85</b>
3	2021	Minimum	68	31	6	10	1
		Maximum	97	57	16	33	3.6
		<b>Average</b>	<b>86</b>	<b>43</b>	<b>10</b>	<b>17</b>	<b>1.65</b>
4	2022	Minimum	80	35	5	10	1.1
		Maximum	90	43	12	22	1.4
		<b>Average</b>	<b>84</b>	<b>39</b>	<b>8</b>	<b>14</b>	<b>1.26</b>





### 2.3 Ground Water Quality

Ground water (hand pump / tube well) is the main source of drinking and irrigation in the study area. Ground water samples (9 Nos) were collected from villages located around the power plant. The water samples were analysed for physicochemical and biological parameters as per the Standard Methods (APHA). The results were compared with the drinking water quality standard prescribed by the Bureau of Indian Standards (IS: 10500:2012). The pH of the samples was found to be alkaline (7.41 - 8.18). TDS values of the sample ranges between 150 - 1380 mg/l. Hardness content of the sample ranges between 52 - 440 mg/l. Calcium values of the samples ranges between 16 - 120 mg/l. Magnesium values of the samples ranges between 2.9 - 34 mg/l. Chloride values of the samples ranges between 35 - 280 mg/l. Fluoride levels were found to be within the beneficial levels of 0.4 mg/l to 1.5 mg/l ( less than 0.4 mg/l fluoride in drinking water will cause dental caries and more than 1.5 mg/l fluoride in drinking water will cause dental and skeletal fluorosis). The ground water did not show any oil or bacterial contamination. Heavy metals like Pb, Cu, Mn, Cr, Ni, Cd, Hg, As, and Se were found to be below the detectable limit.

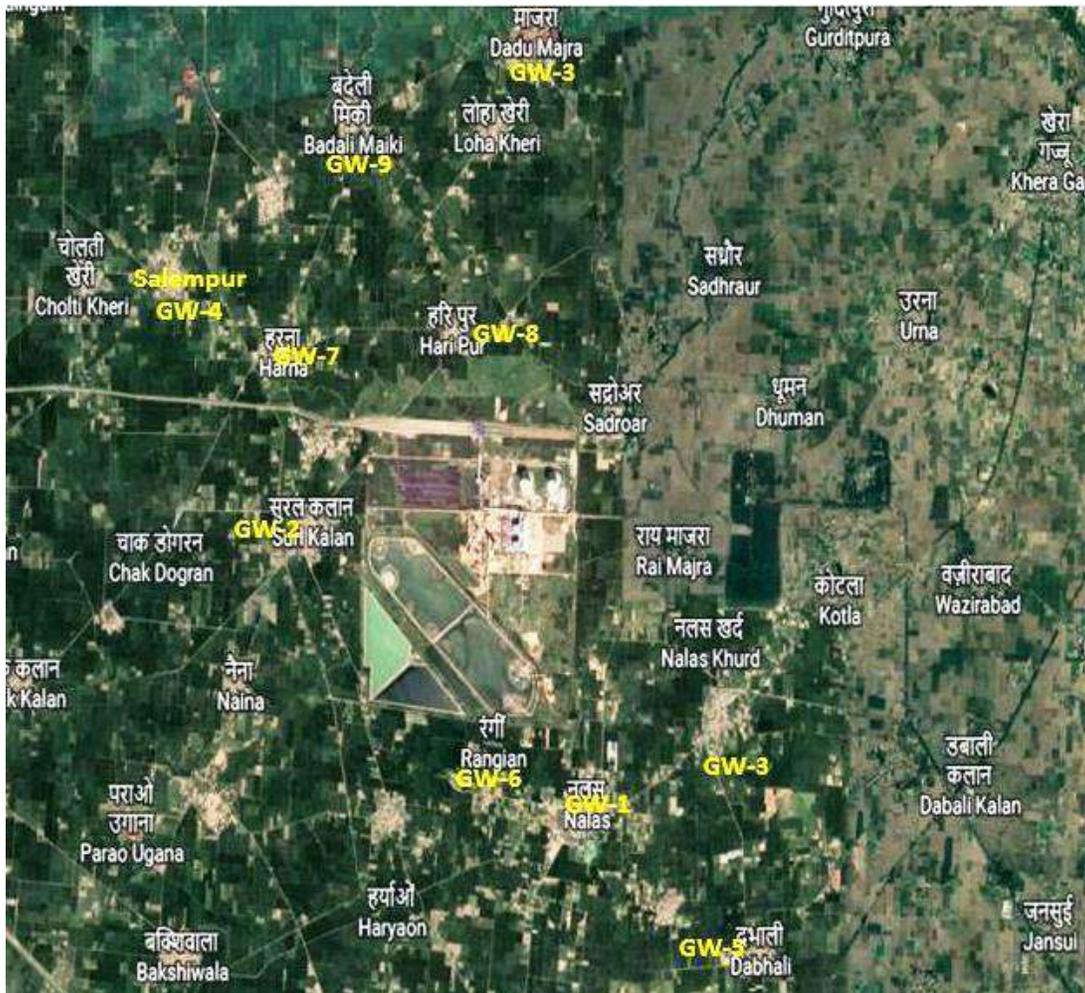


Figure 5: Ground Water Sampling Locations

Table 3: Ground Water Quality Test Results

	Parameters	Unit	Nalash	Surkalan	Dadu majra	Salempur	Dabhali	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	8.14	7.41	8.14	8.18	7.78	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	1120	890	850	880	1980	-	-
3	Turbidity	NTU	1.5	<1	<1	1.8	2	5	15
4	Total Dissolved Solids	mg/l	790	630	590	620	1380	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	210	260	210	260	440	200	600
6	Calcium as Ca	mg/l	60	64	56	68	120	75	200

7	Magnesium as Mg	mg/l	14.6	24	17	22	34	30	100
8	Sulphate	mg/l	72	58	52	65	112	200	400
9	Chlorides as Cl	mg/l	90	72	60	80	280	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	8.5	7.5	7.2	10.5	12.5	45	No relaxation
11	Fluoride as F	mg/l	0.54	0.45	0.42	1.24	1.32	1.0	1.5
12	Iron as Fe	mg/l	0.18	0.12	0.08	0.22	0.26	0.3	No relaxation
13	Copper as Cu	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	1.5
14	Lead as Pb	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	0.58	0.48	0.40	0.82	1.08	5	15
17	Chromium	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	Nil	Nil	Nil	Nil	Nil		0.03
20	Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	0.01	0.05
23	Selenium as Se	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil

**Cont.....Ground Water Quality Test Results**

	Parameters	Unit	Rangia	Harna	Haripur	Badalimajra	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	7.89	7.68	8.08	8.12	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	920	710	980	210	-	-
3	Turbidity	NTU	1.5	<1	1.5	<1	5	15
4	Total Dissolved Solids	mg/l	650	510	690	150	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	250	260	210	52	200	600
6	Calcium as Ca	mg/l	60	64	60	16	75	200
7	Magnesium as Mg	mg/l	24	24	14.6	2.9	30	100
8	Sulphate	mg/l	72	62	72	28	200	400

9	Chlorides as Cl	mg/l	85	70	85	35	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	9.2	8.2	10.8	6.8	45	No relaxation
11	Fluoride as F	mg/l	0.40	1.14	1.24	0.42	1.0	1.5
12	Iron as Fe	mg/l	0.12	0.22	0.24	0.08	0.3	No relaxation
13	Copper as Cu	mg/l	<0.02	<0.02	<0.02	<0.02	0.05	1.5
14	Lead as Pb	mg/l	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	<0.05	<0.05	<0.05	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	0.75	0.85	0.95	0.25	5	15
17	Chromium	mg/l	<0.005	<0.005	<0.005	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	Nil	Nil	Nil	Nil		0.03
20	Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	0.01	0.05
23	Selenium as Se	mg/l	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	Nil	Nil	Nil	Nil	Nil	Nil

## 2.4 Surface Water Quality

One canal water sample was collected. The sample was analyzed for physico-chemical and biological parameters as per Standard Methods (APHA). Hg, As, Pb and Cr were found to be below the detectable limit. The surface water quality is fit for irrigation purpose.

## 2.5 Soil Quality

Nine soil samples were collected from agriculture fields around the plant. The samples were analysed for pH, conductivity, Organic Matter and metallic constituents. pH was found to be moderately alkaline (7.8 to 8.5), conductivity was found to be normal (<1000 µmhos/cm) and Organic Matter was found to be sufficient (0.8%). The concentration of Lead was found to be <0.3 mg/kg, Nickel: 6.2 to 8.5 mg/kg, Cadmium: <0.1 mg/kg, Chromium: <0.2 mg/kg, Arsenic: < 0.2 mg/kg and Mercury: <0.1 mg/kg.

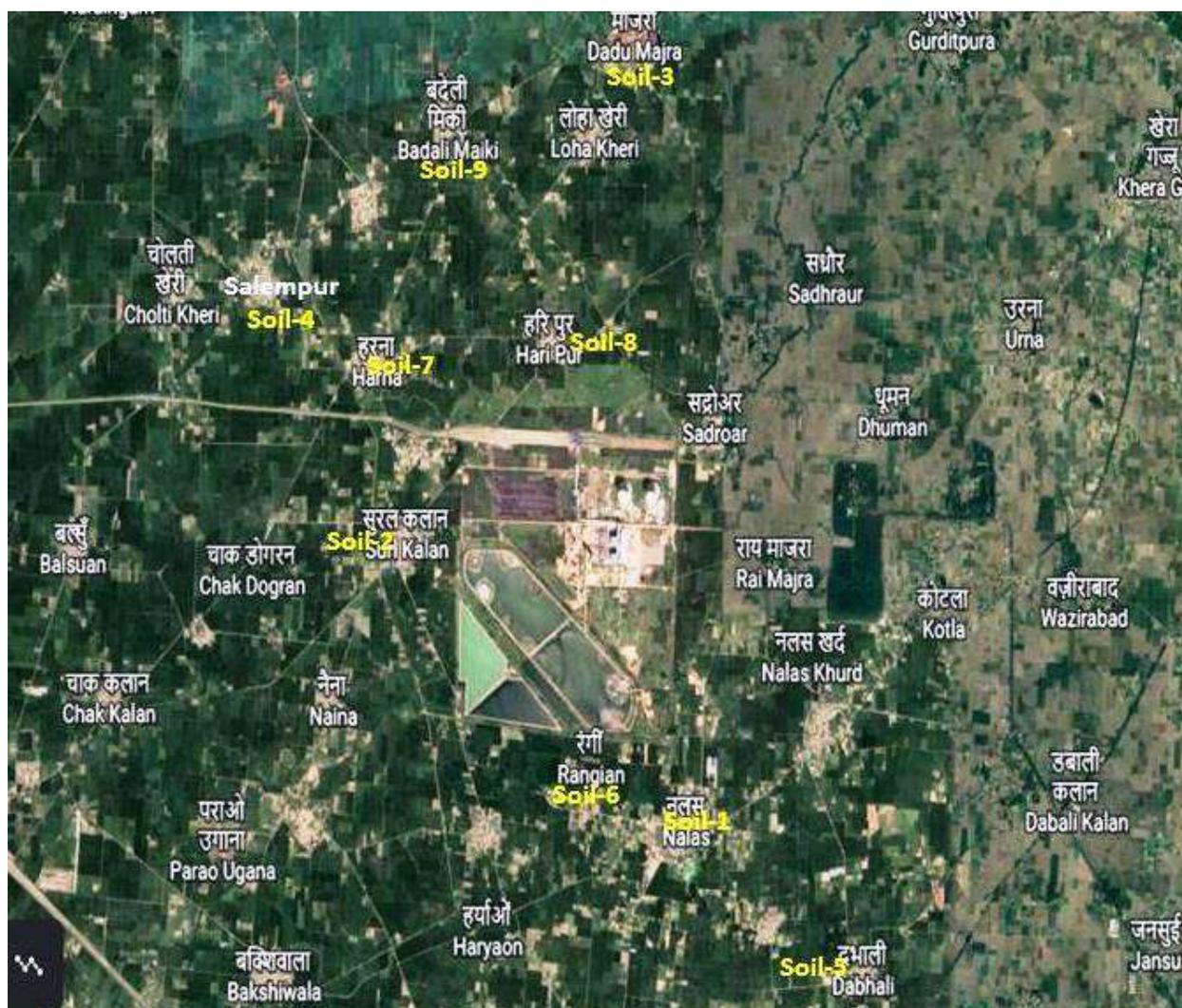


Figure 6: Soil Sampling Locations

Table 4: Soil Quality Test Results

	Parameters	Unit	Nalash	Surkalan	Dadumajra	Salempur	Dabhali
1	pH ( 20% slurry)	-	8.35	8.32	8.26	8.16	8.18
2	Conductivity (20% slurry)	µmhos/cm	120	70	120	60	110
3	Organic Matter	%	0.82	0.80	0.90	0.78	0.88
4	Available Phosphorous	kg/ha	52	48	52	45	56
5	Available Nitrogen	kg/ha	174	168	176	162	180
6	Nickel as Ni	mg/kg	8.5	7.5	6.8	6.5	7.2
7	Copper as Cu	mg/kg	3.2	3.5	2.5	2.8	2.8
8	Cadmium as Cd	mg/kg	ND	ND	ND	ND	ND
9	Chromium as Cr	mg/kg	0.18	0.16	0.12	0.10	0.14

10	Iron as Fe	mg/kg	2.8	4.2	3.2	3.8	3.5
11	Zinc as Zn	mg/kg	22	32	18	26	26
12	Lead as Pb	mg/kg	ND	ND	ND	ND	ND
13	Arsenic	mg/kg	ND	ND	ND	ND	ND
14	Mercury	mg/kg	ND	ND	ND	ND	ND

**cont.....Soil Quality Test Results**

	Parameters	Unit	Rangia	Harna	Haripur	Badali Maiki
1	pH ( 20% slurry)	-	7.98	7.90	8.38	7.96
2	Conductivity (20% slurry)	µmhos/cm	60	110	90	50
3	Organic Matter	%	0.80	0.92	0.88	0.78
4	Available Phosphorous	kg/ha	45	58	52	45
5	Available Nitrogen	kg/ha	172	180	182	170
6	Nickel as Ni	mg/kg	6.5	7.8	8.2	6.2
7	Copper as Cu	mg/kg	2.2	2.5	3.8	2.8
8	Cadmium as Cd	mg/kg	ND	ND	ND	ND
9	Chromium as Cr	mg/kg	0.10	0.12	0.18	0.14
10	Iron as Fe	mg/kg	2.8	2.5	3.5	2.2
11	Zinc as Zn	mg/kg	22	24	28	20
12	Lead as Pb	mg/kg	ND	ND	ND	ND
13	Arsenic	mg/kg	ND	ND	ND	ND
14	Mercury	mg/kg	ND	ND	ND	ND

## 2.6 Heavy Metals in Food Samples

Rice, dal, wheat and maize and locally grown vegetables are the staple food of the people of this area. Chicken, goat meat and eggs are also consumed by about 30% people. Samples of rice, dal, wheat, gram, pulses, potato, onion, tomato were collected from 9 crop fields around the power plant. No heavy metals were detected in any of the food samples (heavy metals like Arsenic, mercury, cadmium, chromium, lead and nickel were found to be less than 0.1 mg/kg).

## CHAPTER 3: BASELINE HEALTH STATUS

### 3.1 Pre-Project Data of Human Health

Village-wise or Taluk-wise health records of population of villages of the study area is not available with the Health Department of State Government.

### 3.2 Primary Health Survey

A cross-sectional study is an observational one. The defining feature of a cross-sectional study is that it can compare different population groups at a single point in time. This is like taking a snapshot. Findings are drawn from whatever fits into the frame. The benefit of a cross-sectional study design is that it allows comparing many different variables at the same time. However, cross-sectional studies may not provide definite information about cause-and-effect relationships. This is because such studies offer a snapshot of a single moment in time; they do not consider what happens before or after the snapshot is taken.

Principally two issues were focused during the survey; i) the types of health problems likely to be caused by discharges from coal based thermal power plant and ii) the spectrum of health problems that the subjects living in the study area might experience when exposed to different environmental media.

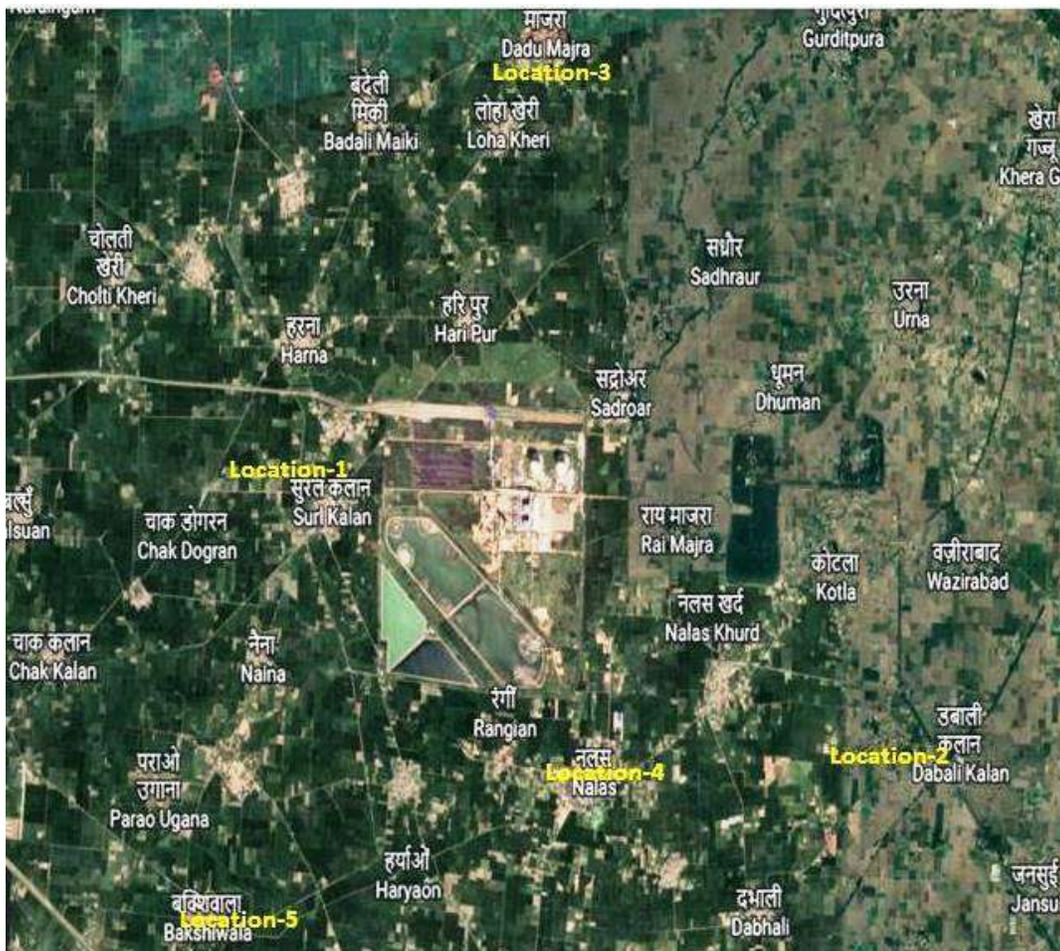
Suitable random sample of people living in the impact and non-impact zone was considered for health check-up. The sample people live, eat and work in similar microenvironment and are likely to be exposed to similar environmental pollutants. For completing the exercise designed questionnaire was used. The design of the questionnaire was "Interviewer Administered".

Primary health survey was carried out by organizing health camps at five (5) locations during the period 07-12-2022 to 09-12-2022. The selected locations represented the highest and moderate impact area and control area due to stack emissions from NPL. Cross-sectional population was screened for the health check-up. Health check-up was done using a questionnaire. Each subject was initially asked questions by the team and then the health checkup was done by a qualified Doctor.

A total of 309 subjects includes children, adolescents, adults and elderly, who were exposed in the existing environment for more than 5 years. The selected locations for carrying out health survey is provided in Table 6 and marked in Figure 6.

**Table 5: Name of Locations Selected for Carrying out Health Survey**

S. No	Location	Distance & Direction from NPL	Impacted / Control Area	Date of Health Check-up	Persons Checked
1	Surkalan	1.7 Km, West	Slightly Impacted	08-12-2022 (FN)	74
2	Dabhali	3.8 Km, South	Moderately Impacted	07-12-2022 (AN)	38
3	Dadumajra	3.5 Km, North	Slightly impacted	08-12-2022 (AN)	110
4	Nalash	2.0 Km, South East	Severely Impacted	07-12-2022 (FN)	44
5	Bakshiwala	4.5 Km, South West	Non-Impacted	09-12-2022 (FN)	43
	Total				309



**Figure 7 Health Survey Locations Marked on Google Image**

### 3.3 Findings of Primary Health Survey

Five vital signs were observed for each subject; namely height, weight, temperature, blood pressure and pulse rate. General appearance of each subject like development and nutrition status, body habits, deformities, attention to grooming, cleanliness of nail, skin, hair and tongue were also noted. Lung Function was done for willing and capable subjects. ECG was done for subjects who complained of heart problems and as recommended by the Doctor-in-charge. Routine urine test and blood test were done for subjects who were recommended by the Doctor-in-charge.

The physical examination included the following parameters:

**HEENT** (Head, Eyes, Ears, Nose, Throat)

**Head:** Size and shape

**Eyes:** Inspection of conjunctivae and lids, Examination of pupils and irises (e.g., reaction to light and accommodation, size and symmetry).

**Ears, Nose and Throat:** External inspection of ears and nose (e.g., overall appearance, scars, lesions, masses), Otoscopic examination of external auditory canals and tympanic membranes, Assessment of hearing (e.g., whispered voice, finger rub, tuning fork), Inspection of nasal mucosa, septum and turbinate, Inspection of lips, teeth and gums, Examination of pharynx, oral mucosa, salivary glands, hard and soft palates, tongue, tonsils and posterior pharynx.

**Neck:** Examination of neck (e.g., masses, overall appearance, symmetry, tracheal position, crepitus), Examination of thyroid (e.g., enlargement, tenderness, mass)

**Respiratory System:** Assessment of respiratory effort (e.g., intercostal retractions, use of accessory muscles, diaphragmatic movement), Percussion of chest (e.g., dullness, flatness, hyper-resonance), Palpation of chest (e.g., tactile fremitus), Auscultation of lungs (e.g., breath sounds, adventitious sounds, rubs), Lung Function using Peak Expiratory Function Meter.

**Cardiovascular System:** Palpation of heart (e.g., location, size, thrills), Auscultation of heart with notation of abnormal sounds and murmurs, examination of carotid arteries (e.g., pulse amplitude, bruits), abdominal aorta (e.g., size, bruits), femoral arteries (e.g., pulse amplitude, bruits), pedal pulses (e.g., pulse amplitude) and extremities for edema and/or varicosities

### 3.4 Body Mass Index (BMI)

BMI is calculated using the weight and height of the people. Normal BMI ranges from 18.5 kg/m<sup>2</sup> – 24.9 kg/m<sup>2</sup>. Person with BMI below 18.5 kg/m<sup>2</sup> is termed underweight and above 25 kg/m<sup>2</sup> is overweight. People with BMI greater than 30 kg/m<sup>2</sup> are termed obese.

**Table 6 : BMI Results of the Five Sampling Locations (n= 309)**

	Name of Location	Normal Weight (%)	Overweight (%)	Obese %	Underweight (%)
1	Surkalan	37.83	28.37	8.1	25.67
2	Dabhalikalan	31.57	28.95	34.21	5.26
3	Dadumajra	45.45	16.36	5.4	32.72
4	Nalash	59.1	20.45	20.45	0
5	Bakshiwala	65.11	23.25	11.63	0

Majority of people in Bakshiwala and Nalash were found to have normal weight. Majority of people in Dabhalii and Surkalan were found to be overweight. 32.72% people of Dadumajra were found to be underweight. 34.21% people of Dabhali were found to be Obese.

### 3.5 Lung Function Test

The peak expiratory flow rate (PEFR) is a test that measures how fast a person can exhale (breathe out). This test checks lung functioning, and is often used by patients who have asthma. Asthma is a chronic condition characterized by ongoing inflammation of the airways. Common asthma symptoms include shortness of breath that worsens with activity, wheezing, and cough. The flow of exhaled air from the lungs may be restricted due to inflammation or congestion from excess mucous.

The basic pulmonary function as per the standard prescribed by the American Thoracic Society was conducted [including the equipment that met the specifications so as to have reproducible and reliable measurements of lung functions]. Each subject was educated before the Spirometry that was undertaken by a trained person in a comfortable and sitting posture so as to get the best value. Out of the three attempts made by each subject, best value is selected.

**Table 7: Normal PEF Values for Males (l / min)**

Age in years	PEF Values of People of Specified Height and Years				
	60"	65"	70"	75"	80"
20	554	602	649	693	740
25	543	590	636	679	725
30	532	577	622	664	710
35	521	565	609	651	695
40	509	552	596	636	680
45	498	540	583	622	665
50	486	527	569	607	649
55	475	515	556	593	634
60	463	502	542	578	618
65	452	490	529	564	603
70	440	477	515	550	587

**Table 8: Normal PEF Values for Females (l / min)**

Age in years	PEF Values of People of Specified Height and Years				
	60"	65"	70"	75"	80"
20	390	423	460	496	529
25	385	418	454	490	523
30	380	413	448	483	516
35	375	408	442	476	509
40	370	402	436	470	502
45	365	397	430	464	495
50	360	391	424	457	488
55	355	386	418	451	482
60	350	380	412	445	475
65	345	375	406	439	468
70	340	369	400	432	461

**Table 9: Normal PEF Values for Adolescents (l / min)**

Height (Inches)	Males & Females
43"	147
44"	160
45"	173
46"	187
47"	200
48"	214
49"	227
50"	240
51"	254
52"	267

53"	280
54"	293
55"	307
56"	320
57"	334
58"	347
59"	360
60"	373
61"	387
62"	400
63"	413
64"	427
65"	440
66"	454

**Table 10: Results of Lung Function Test**

Location	Males		Females	
	Normal PEF % population	Below Normal PEF % population	Normal PEF % population	Below Normal PEF % population
Surkalan	90	10	93	7
Dabhalikalan	91	9	92	8
Dadumajra	92	8	92	8
Nalash	90	10	90	10
Bakshiwala	93	8	95	5

**Observation:** 93% males and 95% females of the study area have normal lung function. This shows a healthy population status of the study area.

### 3.6. General Health Parameters

Majority of subjects were from good to moderate socio economic background but their health was not under any stress due to environmental factors, nutritional factors, or availability of primary health care, etc. The general hygiene related to nails, skin and teeth of the people were found to be good. Malnutrition was absent. No disease or any chronic condition that could be related to environmental pollution has been observed in the population of study area.

None of the people reported cancer, gross neurologic, cardiovascular, hepatic or renal damage/ There was not a single case of congenital abnormality.

**Table 11 General Health Disorders Found in Population around NPL**

S. No	Disorders	% cases observed
<b>Cardiovascular Disorders</b>		
1	Persistent chest pain	2
2	Abnormal pulse rate	1
3	Hypertension	7
<b>Respiratory Disorders</b>		
1	Cough	5.8
2	Headache	11
3	Breathlessness	3
4	Asthma	0
5	Chronic Obstructive Pulmonary Disease (COPD)	0
<b>Other Health Disorders</b>		
1	Dental problems	10
2	Joint pain	26
2	Diabetes Mellitus	14
3	Eye Disorder	8
4	Low hemoglobin in Females	15
5	Low hemoglobin in Males	10

**Table 12: Cases of Health Disorders found in Population around NPL**

	Name of Disorders	%		Name of Disorders	%
1	<b>Eye Checkup</b>		4	<b>Dental Checkup</b>	
	Corneal clouding	0.8		Fluorosis	0.6
	Conjunctival Xerosis	1		Leadline	0.4
	Muddy conjunctiva	0.8		Bleeding gums	1.2
	Cataract	4		Dental caries	2
2	<b>Ear Check up</b>			Pyorrhea	3
	Ear ache	0.4	5	<b>Skin check up</b>	
	Ear discharge	0		Dermatitis	2
	Deafness	0.4		Rash	1
	Ear Infection	0.4		Fungal or Bacterial Infection	1
3	<b>Tongue check up</b>		6	Oedema (Present)	0.4
	Desquamation		7	Tonsils (Enlarged)	0.4
	Thrush	1		Neck lymph nodes	
	Protruded	1	8	(enlarged)	0.4

**Table 13- Results of Health Survey: Category of Disease Vs. Age Group**

<b>LOCATION 1 SURKALAN</b>					
<b>Category of Disease</b>	<b>% of Cases Reported in Following Age Groups</b>				
	<b>Children (5 to 12)</b>	<b>Adolescence (12+ to 18)</b>	<b>Adult (18+ to 40)</b>	<b>Middle Age (40+ to 60)</b>	<b>Elderly Above 60</b>
Addiction				1	
High BP			3	15	17
Low BP			4	1	1
Coughing			4	4	5
Fever			3		2
Headache			8	3	8
Breathlessness				1	3
Chest Pain			1		1
<b>LOCATION 2 DABHALIKALAN</b>					
<b>Category of Disease</b>	<b>% of Cases Reported in Following Age Groups</b>				
	<b>Children</b>	<b>Adolescence</b>	<b>Adult</b>	<b>Middle Age</b>	<b>Above 60</b>
Addiction					
High BP			13	24	21
Low BP		1		2	
Coughing		4	2		4
Fever	2	4	1		
Headache			10	5	8
Breathlessness			3		
Chest Pain				2	
<b>LOCATION 3 DADUMAJRA</b>					
<b>Category of Disease</b>	<b>% of Cases Reported in Following Age Groups</b>				
	<b>Children</b>	<b>Adolescence</b>	<b>Adult</b>	<b>Middle Age</b>	<b>Above 60</b>
Addiction				1	
High BP			3	11	14
Low BP			1		
Coughing				1	1
Fever					2
Headache			3	1	6
Breathlessness					
Chest Pain			1		2
<b>LOCATION 4 NALASH</b>					
<b>Category of Disease</b>	<b>% of Cases Reported in Following Age Groups</b>				
	<b>Children</b>	<b>Adolescence</b>	<b>Adult</b>	<b>Middle Age</b>	<b>Above 60</b>
Addiction				1	
High BP			6	10	45
Low BP					

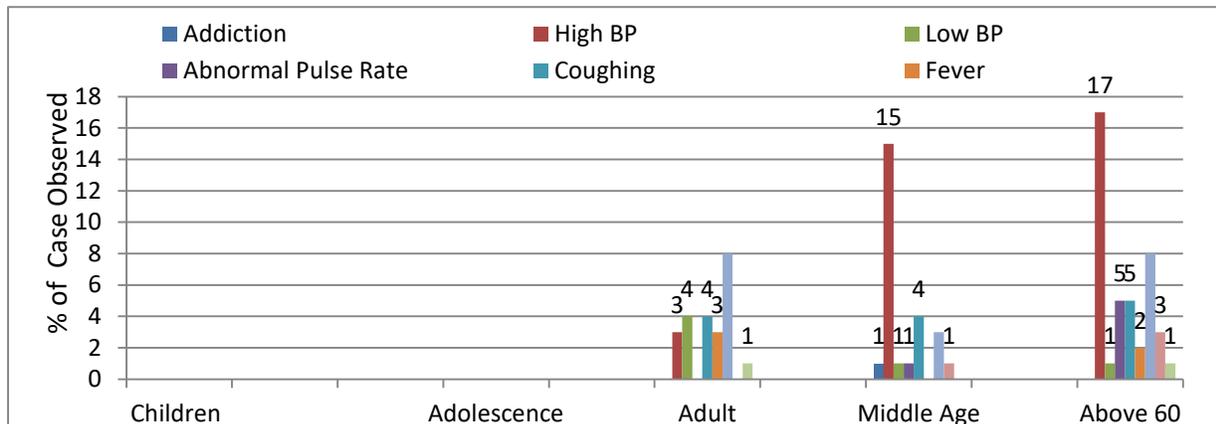
Coughing			2		4
Fever	1	1	2		6
Headache			2	2	10
Breathlessness					
Chest Pain			1		2
<b>LOCATION 5 BAKSHIWALA</b>					
<b>Category of Disease</b>	<b>% of Cases Reported in Following Age Groups</b>				
	<b>Children</b>	<b>Adolescence</b>	<b>Adult</b>	<b>Middle Age</b>	<b>Above 60</b>
Addiction					
High BP			9	25	23
Low BP					
Coughing		1	3	3	
Headache			2	14	10
Breathlessness					
Chest Pain					

**Table 14 Summary of Health Checkup Done at Five Locations**

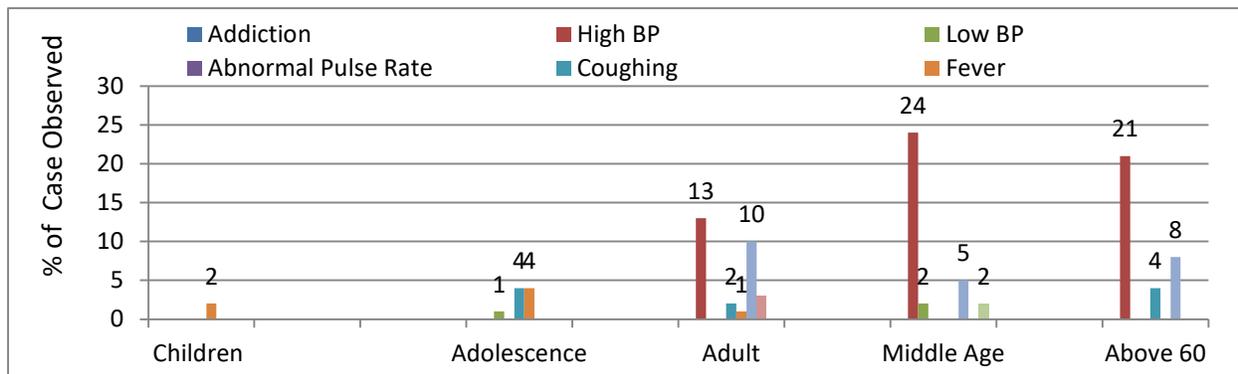
	Name of Location	Over Weight	Cough	High BP	Headache	Other Noted Health Problems
1	Surkalan Slightly impacted	28	13	35	19	Knee joint pain in elderly
2	Dabhali kalan Moderately impacted	29	10	58	23	-
3	Dadumajra Slightly impacted	16	2	28	10	Knee joint pain in elderly
4	Nalash Severely impacted	20	6	61	14	-
5	Bakshiwala Non-Impacted -Control)	23	7	57	26	-

### 3.7 Observation on Each Locations

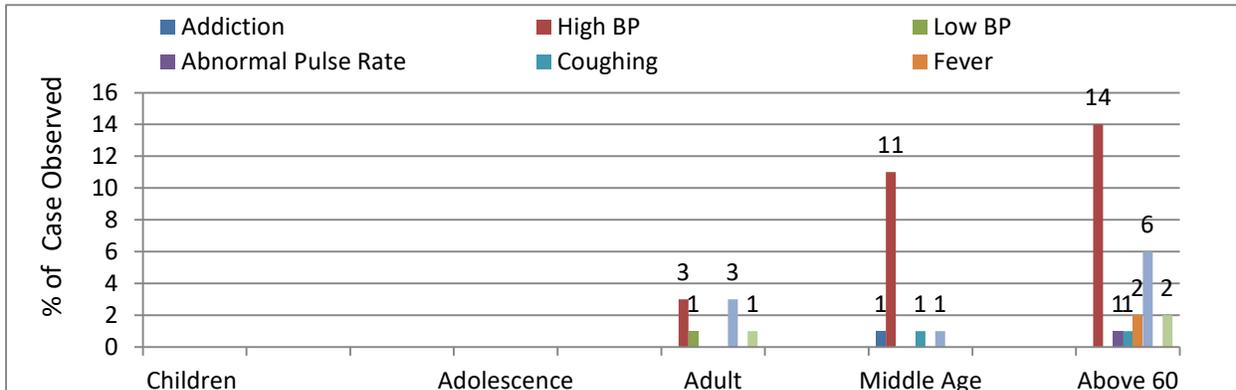
**1. Surkalan:** 3% of adult age and 2% of aged were suffering from fever. 4% adult, 4% middle age and 5% of aged were suffering from coughing. 3% of adult age, 15% of middle aged and 17% of elderly aged have high BP. 4% of adult age, 1% of middle aged and 1% of elderly aged have low BP. 1% of adult and 1% of aged were suffering from prominent chest pain. 8% of adult, 3 % of middle aged 8% of aged were suffering from headache. No people were suffering from asthma and COPD were reported.



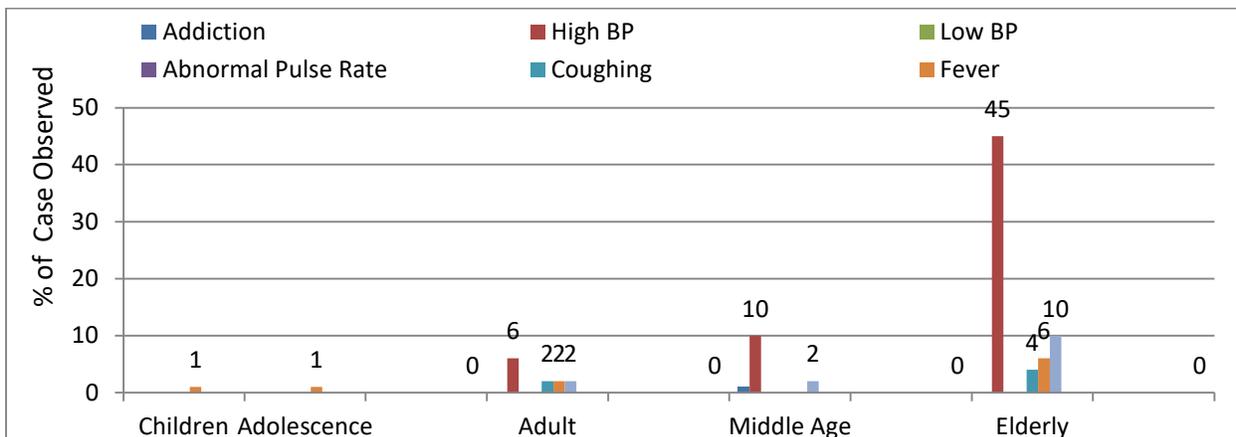
**2. Dabhalikalan:** 2% children, 4% adolescence and 1% of adult aged were suffering from fever. 4% adolescence, 2% adult and 4% of aged were suffering from coughing. 13% of adult age, 24% of middle aged and 21% of elderly aged have high BP. 1% of adolescence age and 2% of middle aged have low BP. 2% of middle age was suffering from prominent chest pain. 10% of adult, 5 % of middle aged 8% of aged were suffering from headache. No cases of asthma and COPD were reported.



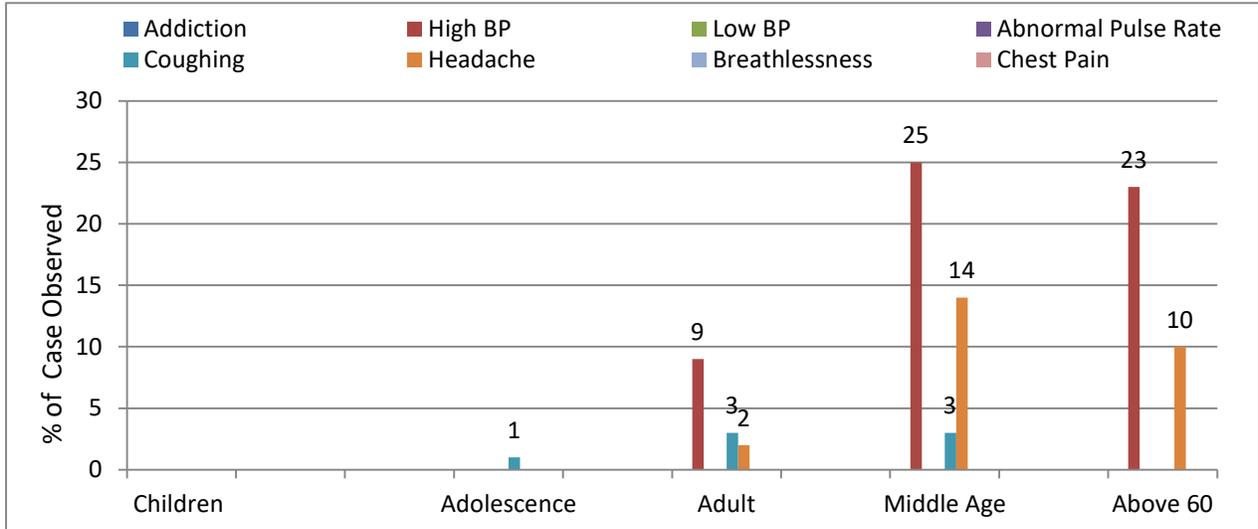
**3. Dadumajra:** 2% of aged were suffering from fever. 1% middle age and 1% of aged were suffering from coughing. 3% of adult age, 11% of middle aged and 14% of elderly aged have high BP. 1% of adult age have low BP. 1% of adult and 2% of aged were suffering from prominent chest pain. 3% of adult, 1 % of middle aged 6% of aged were suffering from headache. No people were suffering from asthma and COPD were reported.



**4. Nalash:** 1% children, 1% adolescence 2% adult and 6% of aged were suffering from fever. 2% adult and 4% of aged were suffering from coughing. 6% of adult age, 10% of middle aged and 45% of elderly aged have high BP. 1% of adult and 2% of aged was suffering from prominent chest pain. 2% of adult, 2 % of middle aged 10% of aged were suffering from headache. No cases of asthma and COPD were reported.



**5. Bakshiwala:** 1% adolescence, 3% adult and 3% middle age were suffering from coughing. 9% of adult age, 25% of middle aged and 23% of elderly aged have high BP. 2% of adult, 14 % of middle aged 10% of aged were suffering from headache. No people were suffering from asthma and COPD were reported.



## CHAPTER 4 : SUMMARY & RECOMMENDATION

- a. Air Environment: The ambient air quality of the impacted and non-impacted areas is found to be well-within the prescribed National Standards.
- b. Water Environment: The ground water samples were found to meet the BIS standards at all locations. The surface water sample were found to meet the Best Designated Use Criteria 'C' of CPCB (fit for irrigation and drinking after conventional treatment).
- c. Soil Environment: Lead, nickel, arsenic, mercury, cobalt, cadmium, chromium levels were found to be within the normal level. Organic matter was found to be suffience, conductivity was found to be normal and pH was found to be moderately alkaline.
- d. Crops and vegetables: No heavy metals were detected in the crops and vegetable samples.
- e. Impact on Human Health: Human Health Survey: Human health profiling was done for 309 resident people of five villages, who are exposed to the existing environment for more than seven years. High BP was found in majority of male adults; Nalash - 61%, Dhabali - 58% Bakshiwala - 57% and Surkalan - 35%. Major complaints of elderly people in Surkalan and Dadumajra were related to pain in knee joints.

No cases of respiratory disorders linked to air pollution like Bronchitis, Asthma or Chronic Obstructive Pulmonary Disorder were found in the people. No disease or any chronic condition that could be related to air pollution / effluent discharges from coal based power plant has been observed in the population of the study area. None of the people in the study area reported any serious health problem such as Cancer, Gross Neurologic, Hepatic or Renal Damage and Congenital Abnormality.

### Recommendation

Considering the fact that there is a growing international pressure against coal based thermal power plants because it is perceived that the emission and discharges are causative factors for some adverse human health impacts, the health study should be continuously done after a gap of two years or as suggested by the regulatory authorities.

# **APPENDIX - A**

## **REFERENCES**

## REFERENCES

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# **APPENDIX-B**

# **PHOTO GALLERY**



HEALTH CHECKUP CAMP SURAL KALAN



HEALTH CHECKUP CAMP SURAL KALAN



HEALTH CHECKUP CAMP DABHALIKALAN



**HEALTH CHECKUP CAMP DADUMAJRA**



**HEALTH CHECKUP CAMP NALAS**



HEALTH CHECKUP CAMP BAKSHIWALA

# **APPENDIX-C**

# **TEST RESULTS**

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

Registered Office Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092

Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com, website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 01/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Nalash  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	8.14	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	1120	-	-
3	Turbidity	NTU	APHA-2030B	1.5	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	790	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	210	200	600
6	Calcium as Ca	mg/l	APHA-4500B	60	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	14.6	30	100
8	Sulphate	mg/l	APHA-4500B	72	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	90	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	8.5	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	0.54	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.18	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.58	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.002	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

### ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

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Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com, website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 02/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Surkalan  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	7.41	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	890	-	-
3	Turbidity	NTU	APHA-2030B	<1	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	630	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	260	200	600
6	Calcium as Ca	mg/l	APHA-4500B	64	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	24	30	100
8	Sulphate	mg/l	APHA-4500B	58	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	72	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	7.5	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	0.45	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.12	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.48	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.002	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

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Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com, website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 03/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Dadumajra  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	8.14	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	850	-	-
3	Turbidity	NTU	APHA-2030B	<1	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	590	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	210	200	600
6	Calcium as Ca	mg/l	APHA-4500B	56	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	17	30	100
8	Sulphate	mg/l	APHA-4500B	52	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	60	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	7.2	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	0.42	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.08	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.40	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.002	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

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## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 04/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Salempur  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	8.18	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	880	-	-
3	Turbidity	NTU	APHA-2030B	1.8	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	620	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	260	200	600
6	Calcium as Ca	mg/l	APHA-4500B	68	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	22	30	100
8	Sulphate	mg/l	APHA-4500B	65	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	80	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	10.5	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	1.24	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.22	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.82	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.001	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

### ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

Registered Office Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092

Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com, website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 05/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Dhabali  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	7.78	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	1980	-	-
3	Turbidity	NTU	APHA-2030B	2	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	1380	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	440	200	600
6	Calcium as Ca	mg/l	APHA-4500B	120	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	34	30	100
8	Sulphate	mg/l	APHA-4500B	112	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	280	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	12.5	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	1.32	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.26	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	1.08	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.001	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

Registered Office Tower 5 / 102 (FF), CWG village, NH24, Near Akshardham Temple, Delhi 110092

Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com , website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 02/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Rangia  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	7.89	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	920	-	-
3	Turbidity	NTU	APHA-2030B	1.5	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	650	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	250	200	600
6	Calcium as Ca	mg/l	APHA-4500B	60	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	24	30	100
8	Sulphate	mg/l	APHA-4500B	72	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	85	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	9.2	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	0.40	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.12	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.75	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.001	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

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## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 07/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Harna  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	7.68	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	710	-	-
3	Turbidity	NTU	APHA-2030B	<1	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	510	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	260	200	600
6	Calcium as Ca	mg/l	APHA-4500B	64	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	24	30	100
8	Sulphate	mg/l	APHA-4500B	62	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	70	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	8.2	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	1.14	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.22	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.85	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.001	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

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Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

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Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com , website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 08/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Haripur  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	8.08	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	980	-	-
3	Turbidity	NTU	APHA-2030B	1.5	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	690	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	210	200	600
6	Calcium as Ca	mg/l	APHA-4500B	60	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	14.6	30	100
8	Sulphate	mg/l	APHA-4500B	72	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	85	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	10.8	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	1.24	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.24	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.95	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.001	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

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Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com , website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 09/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Ground Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Badalimai  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS	Acceptable Limit IS:10500:2012	Permissible Limit IS:10500:2012
1	pH	-	APHA-4500	8.12	6.5 to 8.5	No relaxation
2	Conductivity	µmhos/cm	APHA-2510	210	-	-
3	Turbidity	NTU	APHA-2030B	<1	5	15
4	Total Dissolved Solids	mg/l	APHA-2540B	150	500	2000
5	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	52	200	600
6	Calcium as Ca	mg/l	APHA-4500B	16	75	200
7	Magnesium as Mg	mg/l	APHA-4500B	2.9	30	100
8	Sulphate	mg/l	APHA-4500B	28	200	400
9	Chlorides as Cl	mg/l	APHA-4500B	35	250	1000
10	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	6.8	45	No relaxation
11	Fluoride as F	mg/l	APHA-4500D	0.42	1.0	1.5
12	Iron as Fe	mg/l	APHA-3111B	0.08	0.3	No relaxation
13	Copper as Cu	mg/l	APHA-3111B	<0.02	0.05	1.5
14	Lead as Pb	mg/l	APHA-3111B	<0.01	0.01	No relaxation
15	Manganese as Mn	mg/l	APHA-3111B	<0.05	0.1	0.3
16	Zinc as Zn	mg/l	APHA-3111B	0.25	5	15
17	Chromium	mg/l	APHA-3111B	<0.005	0.05	No relaxation
18	Nickel as Ni	mg/l	APHA-3111B	<0.01	0.02	No relaxation
19	Oil & Grease	mg/l	APHA-5520D	Nil		0.03
20	Cadmium as Cd	mg/l	APHA-3111B	<0.001	0.003	No relaxation
21	Mercury as Hg	mg/l	APHA-3111B	<0.001	0.001	No relaxation
22	Arsenic as As	mg/l	APHA-3111B	<0.001	0.01	0.05
23	Selenium as Se	mg/l	APHA-3111B	<0.01	0.01	No relaxation
24	Total coliform	MPN/100 ml	APHA-9230B	Nil	Nil	Nil

  
Authorized Signatory  
MUKESH KUMAR

### ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

# EMTRC CONSULTANTS PRIVATE LIMITED

EMTRC Lab: Recognized by Ministry of Environment, Forests & Climate Change, Govt. of India

Gazette Notification SO: 3744 (E), 17-10-2019 Accredited by NABL - ISO/IEC 17025:2005 (TC-7376)

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Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com , website: www.emtrc.in

## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 10/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patial, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Surface Water  
Date of Sampling : 17-10-2022  
Location of Sampling : Bhakra Nagal  
Sampling Procedure : Grab Sampling  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

	Parameters	Unit	Test Methods	RESULTS
1	pH	-	APHA-4500	7.82
2	Conductivity	µmhos/cm	APHA-2510	260
3	Turbidity	NTU	APHA-2030B	1.5
4	Temperature	°C	APHA-4500	24
5	Total Dissolved Solids	mg/l	APHA-2540B	180
6	Total Hardness as CaCO <sub>3</sub>	mg/l	APHA-2340C	110
7	Calcium as Ca	mg/l	APHA-4500B	36
8	Magnesium as Mg	mg/l	APHA-4500B	4.8
9	BOD	mg/l	IS:3025 P44 1993 (RA 2003)	2.5
10	COD	mg/l	APHA-5220C	15
11	Sulphate	mg/l	APHA-4500B	24
12	Chlorides as Cl	mg/l	APHA-4500B	32
13	Nitrates as NO <sub>3</sub>	mg/l	APHA-4500	4.8
14	Fluoride as F	mg/l	APHA-4500D	0.38
15	Iron as Fe	mg/l	APHA-3111B	0.14
16	Copper as Cu	mg/l	APHA-3111B	<0.02
17	Lead as Pb	mg/l	APHA-3111B	<0.01
18	Manganese as Mn	mg/l	APHA-3111B	<0.05
19	Zinc as Zn	mg/l	APHA-3111B	0.32
20	Chromium	mg/l	APHA-3111B	<0.005
21	Nickel as Ni	mg/l	APHA-3111B	<0.01
22	Oil & Grease	mg/l	APHA-5520D	0.28
23	Cadmium as Cd	mg/l	APHA-3111B	<0.001
24	Mercury as Hg	mg/l	APHA-3111B	<0.001
25	Arsenic as As	mg/l	APHA-3111B	<0.001
26	Selenium as Se	mg/l	APHA-3111B	<0.01
27	Total coliform	MPN/100 ml	APHA-9230B	80



Authorized Signatory  
MUKESH KUMAR

### ENVIRONMENT MONITORING TRAINING & RESEARCH CENTRE

EMTRC Lab: F-66, Road-2, UPSIDC Industrial Area, Masuri Gulawthi Road, Ghaziabad (UP) 201009

# EMTRC CONSULTANTS PRIVATE LIMITED

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## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 11/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Soil Sample  
Date of Sampling : 17-10-2022  
Sampling Procedure : SOP  
Sample Collected & Brought to Lab by : EMTRC Staff

## TEST RESULTS

	Parameters	Unit	Nalash	Dhabali	Dadumajra	Surkalan	Salempur
1	pH ( 20% slurry)	-	8.35	8.18	8.26	8.32	8.16
2	Conductivity (20% slurry)	µmhos/cm	120	110	120	70	60
3	Organic Matter	%	0.82	0.88	0.90	0.80	0.78
4	Available Phosphorous	kg/ha	52	56	52	48	45
5	Available Nitrogen	kg/ha	174	180	176	168	162
6	Nickel as Ni	mg/kg	8.5	7.2	6.8	7.5	6.5
7	Copper as Cu	mg/kg	3.2	2.8	2.5	3.5	2.8
8	Cadmium as Cd	mg/kg	ND	ND	ND	ND	ND
9	Chromium as Cr	mg/kg	0.18	0.14	0.12	0.16	0.10
10	Iron as Fe	mg/kg	2.8	3.5	3.2	4.2	3.8
11	Zinc as Zn	mg/kg	22	26	18	32	26
12	Lead as Pb	mg/kg	ND	ND	ND	ND	ND
13	Arsenic	mg/kg	ND	ND	ND	ND	ND
14	Mercury	mg/kg	ND	ND	ND	ND	ND



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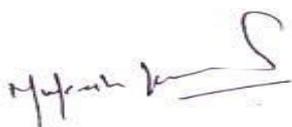
## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 12/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Soil Sample  
Date of Sampling : 17-10-2022  
Sampling Procedure : SOP  
Sample Collected & Brought to Lab by : EMTRC Staff

## TEST RESULTS

	Parameters	Unit	Harna	Rangia	Badali Majra	Haripur
1	pH ( 20% slurry)	-	7.90	7.98	7.96	8.38
2	Conductivity (20% slurry)	µmhos/cm	110	60	50	90
3	Organic Matter	%	0.92	0.80	0.78	0.88
4	Available Phosphorous	kg/ha	58	45	45	52
5	Available Nitrogen	kg/ha	180	172	170	182
6	Nickel as Ni	mg/kg	7.8	6.5	6.2	8.2
7	Copper as Cu	mg/kg	2.5	2.2	2.8	3.8
8	Cadmium as Cd	mg/kg	ND	ND	ND	ND
9	Chromium as Cr	mg/kg	0.12	0.10	0.14	0.18
10	Iron as Fe	mg/kg	2.5	2.8	2.2	3.5
11	Zinc as Zn	mg/kg	24	22	20	28
12	Lead as Pb	mg/kg	ND	ND	ND	ND
13	Arsenic	mg/kg	ND	ND	ND	ND
14	Mercury	mg/kg	ND	ND	ND	ND



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## TEST REPORT

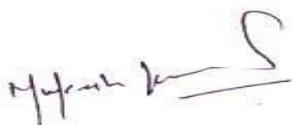
Date: 24-10-2022

Report No. : EMTRC/NPL - 12/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patial, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Dhabali Village					
Parameter	Unit	Grass	Milk	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Dhabali Village					
Parameter	Unit	Potato	Tomato	Onion	Chana Dal
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND



Authorized Signatory  
MUKESH KUMAR

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Phone: 9810032481, 011 21211228, email: emtrcjkm@gmail.com , website: www.emtrc.in

## TEST REPORT

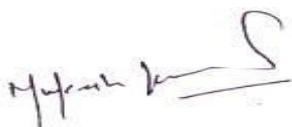
Date: 24-10-2022

Report No. : EMTRC/NPL - 13/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Dadumajra Village					
Parameter	Unit	Grass	Jowar	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Dadumajra Village					
Parameter	Unit	Potato	Tomato	Onion	Green Chilli
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND



Authorized Signatory  
MUKESH KUMAR

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## TEST REPORT

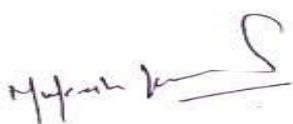
Date: 24-10-2022

Report No. : EMTRC/NPL - 14/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Nalash					
Parameter	Unit	Grass	Gram	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Nalash					
Parameter	Unit	Potato	Tomato	Onion	Green Chilli
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND



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## TEST REPORT

Date: 24-10-2022

Report No. : EMTRC/NPL - 15/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patial, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Salempur Village					
Parameter	Unit	Grass	Jowar	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Salempur Village					
Parameter	Unit	Potato	Tomato	Onion	Tur Dal
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

  
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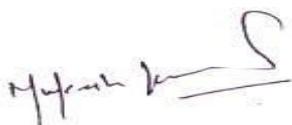
Date: 24-10-2022

Report No. : EMTRC/NPL - 16/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Surkalan Village					
Parameter	Unit	Grass	Jowar	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Surkalan Village					
Parameter	Unit	Potato	Tomato	Onion	Chana Dal
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND



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No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Rangia Village					
Parameter	Unit	Grass	Jowar	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Rangia Village					
Parameter	Unit	Potato	Tomato	Onion	Masood Dal
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

  
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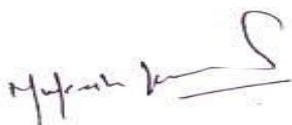
Date: 24-10-2022

Report No. : EMTRC/NPL - 18/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Harna Village					
Parameter	Unit	Grass	Milk	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Harna Village					
Parameter	Unit	Potato	Tomato	Onion	Green Chilli
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND



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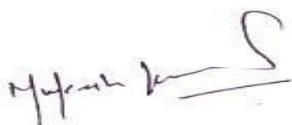
Date: 24-10-2022

Report No. : EMTRC/NPL - 19/2022  
Issued To : Nabha Power Limited  
Village Nalash, Tehsil Rajpura, District Patiala, Punjab  
No. of Pages : 1 of 1  
Type of Sample : Fruits & Vegetables  
Date of Sampling : 17-10-2022 & 18-10-2022  
Sample Collected & Brought to Lab by : EMTRC Staff

### TEST RESULTS

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Haripur Village					
Parameter	Unit	Grass	Gram	Rice	Wheat
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND

Heavy Metal in grass, milk, Fruits, vegetable and other products collected from Haripur Village					
Parameter	Unit	Potato	Tomato	Onion	Chana Dal
Lead as Pb	mg/kg	ND	ND	ND	ND
Chromium as Cr	mg/kg	ND	ND	ND	ND
Nickel as Ni	mg/kg	ND	ND	ND	ND
Cadmium as Cd	mg/kg	ND	ND	ND	ND
Mercury as Hg	mg/kg	ND	ND	ND	ND
Arsenic as As	mg/kg	ND	ND	ND	ND



Authorized Signatory  
MUKESH KUMAR

# **Annexure-18**

## **Public Grievances Redressal Cell Minutes of Meeting**



Minutes Of Meeting			
<b>Date</b>	<b>30.03.2024</b>	<b>Time</b>	<b>11:30 Hrs</b>
<b>Subject</b>	Public Grievances Redressal Cell		
<b>Venue</b>	Board room		
<b>Participants</b>	<ol style="list-style-type: none"><li>1. Mr. Rajesh Kumar, Chairman</li><li>2. Mr. Prateek Gupta, Member</li><li>3. Mr. Amit Kumar Garg, Member</li><li>4. Mr. Devdutta Sarma, Member</li><li>5. Mr. Gaganvir Singh Cheema, Convener</li></ol>		
<b>Absent</b>	None		

1. Mr. Rajesh Kumar, ascertained that the requisite quorum was present and called the meeting to order.
2. Mr. Devdutta Sarma apprised the committee members of the action undertaken regarding the issues recorded in the MOM dated 28<sup>th</sup> September 23.

(A) Issue of Wild Boars

- (a) NPL had sent a letter on 14th Nov'22 to District Forest Officer (DFO), Patiala with a request to help NPL solve the Wild Boar problem by sending a team. NPL's CSR & Admin Team, had visited the office of Chief Conservative (Wildlife) Mohali on 20th Feb'23 and met Mr. Arun Kumar, DFO on the subject matter.
- (b) During the interaction, DFO suggested that NPL may write to DFO Patiala along with the written request of surrounding village panchayats. CSR team had obtained the written request letters on 27th February 2023 from Village Panchayats of Rangian, Sural Kalan, Nalash Kalan and Nalash Khurd requesting NPL to curb the issue of wild boars. Panchayat letters were forwarded to District Forest Officer (Wildlife) Patiala on 28th February 2023.
- (c) Based on the letter received from NPL, District Forest Officer (Wildlife) Patiala wrote a letter dated 9th March 2023 to Forest Conservator (Wildlife) Parks and Protected area, Mohali seeking their advice on the subject matter. That letter is also marked to NPL and Village panchayats of Rangian, Sural Kalan, Nalash Kalan and Nalash Khurd. There has been no further update from the officials.

(d) In parallel, NPL had initiated construction of prefabricated boundary wall of approx. 2.5 kms adjoining Rangian/Nalash Kalan/Nalash Khurd villages. The same is expected to be completed by 31st Dec'23. This would help in curbing the wild boar menace.

**Update:** - With reference to Point (d), Prefabricated boundary wall construction completed towards the Rangian, Nalash Kalan, Nalash Khurd villages. No further complains receive.  
- **Point Closed.**

(B) Speed breakers in villages.

NPL's CSR Team had obtained written request letters, stating the need of speed breakers, from concerned Panchayats. NPL had fixed speed breakers at Jansua and Rai Majra villages, during May'23 – **Point Closed.**

3. Further, Mr. Devdutta Sarma apprised the committee members of the various requests received between Oct'23 - March 24 period, and the actions & initiatives taken by NPL.

A. Village Panchayats of Rai Majra, Kotla, Mirzapur & Sadrur villages had made request for repair of roads which were damaged during the July'23 floods and construction of 2 drain outlets for egress of water. NPL had initiated the process and was expected to be completed by 31st Dec'23.

**Update:** - The repair of the above-mentioned road and construction of additional culvert (lying of hume pipes) was done in December 2023 – **Point Closed.**

B. Pruning of tree branches on both sides of the roads passing through Rai Majra, Kotla and Mirzapur villages is being undertaken in view of the ensuing foggy season. Also, pruning of tree branches lined all around our plant boundary. This work was expected to be completed by 15th Dec'23.

**Update:** - Pruning of tree branches on both sides of the roads passing through Rai Majra, Kotla and Mirzapur villages and plant boundary was done in December 2023 – **Point Closed**

C. The railway underpass of Sural Khurd & Harna was getting flooded whenever it rained. NPL had initiated construction of 1 additional drain for quick egress of water. The work was expected to be completed by 31st Dec'23.

**Update:** - Additional Pump installed and Pipeline laid in December 2023 at Sural Khurd- Harna railway underpass. – **Point Closed.**

#### 4. Additional Points:

- A. Ash spillage from Ash Silo area – Farmers of village Sadhror and Raimajra, had raised concern about ash spillage from silos into their fields, damaging the crop and agriculture machinery.

**Action Point** – Wind barrier damaged cloth to be checked & rectified as per requirement, completion by July 2024.

- B. Pruning of trees along the plant boundary: Farmers from villages Sural, Haripur, Sadhror, Kotla, had raised concern that the shadow of overgrown tree branches is hampering the crops growth.

**Action Point** - To be completed by end May 2024.

- C. Over speeding of Tippers & Bulkers: Residents of villages Sadhror, Raimajra, Kotla and Mirjapur, had raised concern about road safety and excessive dust due to tipper & bulker movements.

**Action Point** - Speed Breakers have been installed at 03 locations - Rai Majra, Mirjapur & Jansua. All drivers have been instructed to adhere to speed limit. All vendors are ensuring the vehicles are covered with tarpaulins. Also, periodic water sprinkling is being ensured as per requirement.

As there were no other open points for discussion and as no other member had any other points for discussion, the meeting was concluded.