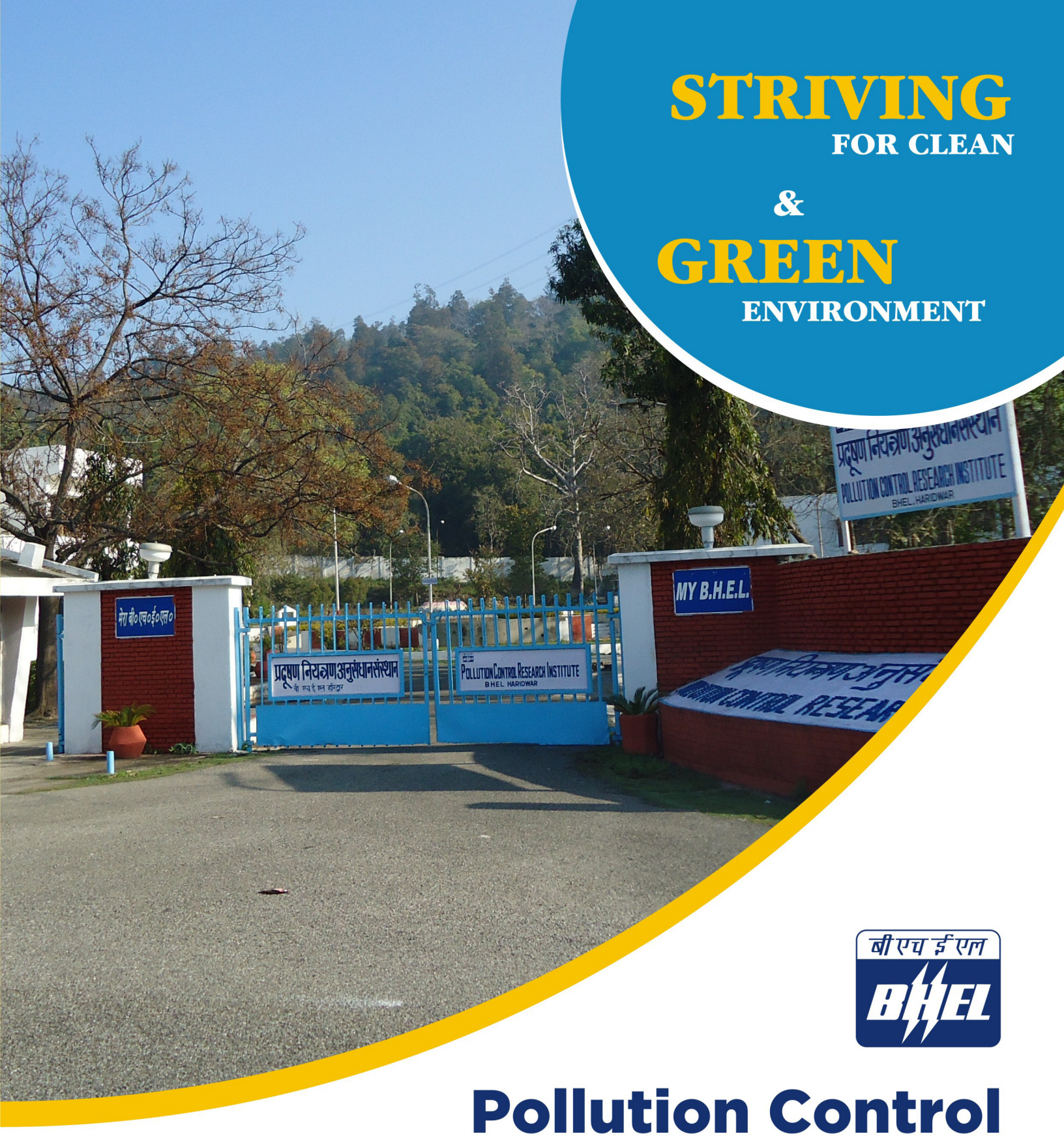

Pollution Control Research Institute

(A Govt. of India- UNDP/UNIDO Project)

BHARAT HEAVY ELECTRICALS LIMITED, RANIPUR, HARIDWAR

BHEL- Setting the Standards of Excellence

India's premier state-owned public sector enterprise Bharat Heavy Electricals Limited (BHEL) has been playing a pivotal role in shaping the engineering and manufacturing capability in India across several core sectors, including power generation and transmission, transportation, renewables, water, oil & gas and defence & aerospace.

BHEL has established strong linkages with other public sector enterprises as well as research institutes in India and is also having technology tie-ups with leading OEM's in various sectors.

With 16 manufacturing facilities spread across the country that manufacture equipment compliant with latest national and international standards, BHEL's state-of-the-art facilities specialise in engineering, manufacturing, testing, aftermarket services for equipment in the power sector segment and various industrial sectors. These manufacturing units are supported by four overseas offices, four regional offices, eight service centres and 15 regional marketing centres to deliver value to its customers.

BHEL is credited as one of India's largest employers, in the engineering sector with more than 34,000 highly skilled employees which includes 9,000 engineers with qualifications, experience and skills spanning a wide range of technology areas. Needless to say, BHEL's employees have been one of the strongest pillars in building this successful business.

With an R&D spend of over 2.5% of the annual turnover, BHEL is one the highest in the capital goods manufacturing industry in India. BHEL's dedicated R&D centre in Hyderabad has been instrumental in shaping technology and innovative manufacturing capabilities.

BHEL has established over 75 technology collaborations with several global players over the years and these partnerships have helped both parties by sharing of technologies, know-how and resources.

BHEL's unique ability to provide pan-India access has been one of its core strengths. There are about 150 ongoing projects in different parts of India, served through the manufacturing and business units spread across the country. BHEL's expertise in exports can be utilised by global manufacturing firms to have a manufacturing hub in India.

Health, Safety and Environment Policy

In BHEL, Health, Safety and Environment (HSE) responsibilities are driven by our commitment to protect our employees and people we work with, community and environment. BHEL believes in zero tolerance for unsafe work/non-conformance to safety and in minimizing environmental footprint associated with all its business activities. We commit to continually improve our HSE performance by:

- Developing safety and sustainability culture through active leadership and by ensuring availability of required resources.
- Ensuring compliance with applicable legislation, regulations and BHEL systems.
- Taking up activities for conservation of resources and adopting sound waste management by following Reduce/Recycle/Reuse approach.
- Continually identifying, assessing and managing environmental impacts and Occupational Health & Safety risks of all activities, products and services adopting approach based on elimination/ substitution/reduction/control.
- Incorporating appropriate Occupational Health, Safety and Environment criteria into business decisions, design of products & systems and for selection of plants, technologies and services.
- Imparting appropriate structured training to all persons at workplace and promoting awareness amongst customers, contractors and suppliers on HSE issues.
- Reviewing periodically this policy and HSE Management Systems to ensure its relevance, appropriateness and effectiveness.
- Communicating this policy within BHEL and making it available to interested parties.

PCRI – In Service of the Nation

Against the picturesque Shivalik foothills of the Himalayas, at Haridwar, stands majestically, the Pollution Control Research Institute (PCRI), an Institute, setup by Bharat Heavy Electricals Limited under the United Nation Development Programme (UNDP/UNIDO), during 1986.

The Institute is concentrating on Research and Development activities related to protection of environment from pollution originating from industries. In pursuance of this, PCRI provides consultancy services to Industries, prescribing practical methods to reduce pollution level within permissible limits.

Number of international experts from developed countries have already worked with the professionals of PCRI, on important projects in India. A number of R&D projects have also been undertaken to achieve self-reliance.

Pollution Control Research Institute continues to be on a steady growth path. The institute has entered into a new segment of environmental business for Establishment of Chemical & Environment Laboratories as part of EPC contracts of BHEL for setting up of power plants. The institute has also carried out overseas assignments for providing services related to Safe Handling of Hazardous Materials in Electrical Equipments, Stack Height optimization for better dispersion and Air & Water Monitoring equipments at project sites.

Equipped with modern and sophisticated facilities and backed by persistent and extensive efforts of talented & experienced team of scientists and engineers – the backbone of the Institute, PCRI is fast emerging as one of the leading institute of its kind in India.

Capabilities

PCRI is well established and can handle a wide spectra of jobs in different fields of pollution control:

AIR, NOISE POLLUTION MONITORING & ANALYSIS

- Ambient Air Quality
- Stack Emission
- Fugitive Emission & Work Place Environment
- Occupational Health & Safety Parameters
- Ambient Noise Quality
- Work Place Noise
- Equipment Noise Assessment

Parameters:

✓ Suspended Particulate Matter, PM10, PM2.5, PM1, Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide, Fluoride, Hydro Carbons, Ozone, VOC, Benzo(a) Pyrene, Benzene & Ammonia

✓ Heavy Metals

✓ Volatile Organic Compounds; Leak Detection and Reporting (LDAR)

✓ Micro Meteorological Parameters

✓ Illumination, Noise dose, Heat stress, Oxygen level in work place and Bacteriological contaminant in indoor air quality.

WATER POLLUTION MONITORING AND ANALYSIS

- Surface Water
- Ground Water/Drinking Water
- Industrial Effluent
- Sewage Water

Parameters

Physical:

✓ pH, Colour, Odour, Conductivity, Solids, Turbidity

Chemical:

✓ Acidity, Alkalinity, Arsenic, Aluminium, Antimony, Ammonia, Barium, Bismuth, Bio-Chemical Oxygen Demand (COD), Boron, Chloride, Chemical Oxygen Demand (COD), Copper, Calcium, Chromium, Cobalt, Dissolved Oxygen, Hardness, Iron, Lead,Mercury, Magnesium, Manganese, Nickel, Nitrate, Nitride, Oil & Grease, Pesticides, Phenols, Phosphate, Potassium, Selenium, Sodium, Sulphide, Sulphate, Silicon, Total Organic Carbon, TKN, Silver, Vanadium, Zinc.

Biological:

✓ Bacteriological Analysis (TPC, Total Coliform &Faecal Coliform, E. coli)

✓ Plankton Analysis – Zooplanktons & Phytoplankton

✓ Bio Assay Test

SOIL AND SOLID WASTE

- Analysis of Soil, Solid wastes and Hazardous Solid wastes.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

- EIA studies for New/Expansion projects & preparation of EMP& DMP for Developmental Projects
- Risk Analysis and Disaster Management Plan
- Baseline Data Collection for Environmental and Meteorological Parameters
- Dispersion Modelling for Stack Emissions and Prediction of Ground Level Concentrations

ENVIRONMENTAL AUDIT

- Environmental Auditing of Industries and Preparation of Environmental Statement (Form V)
- Identification of Potential Areas for Recycling & Reuse of Resources
- Suggestions & Recommendations for Conservation of Resources and Improvement of Environmental Performance

CONSULTANCY SERVICES

- Development of Environment & Chemical Laboratories in Thermal Power Projects/Other Industries
- Design and Development of Air Pollution Control Towers
- Performance Evaluation of Air & Water Pollution Control equipment and suggesting measures for improvement
- Performance Evaluation of Flue Gas Desulphurization (FGD) Systems in Thermal Power Plants
- Source Apportionment Studies
- Lakes & Ponds Rejuvenation Studies
- Studies of Hazardous/Municipal Solid Waste Disposal Sites
- Facilitation and Training related to Health Safety & Environment
- Organising Training Programmes on Air and Water Pollution for Regulatory Bodies, Industrial Professionals

REGIONAL ENVIRONMENTAL STUDIES

- Collection of Environmental Baseline Data for a Region to establish Baseline Levels
- Preparation of Emission Inventory and Estimation of Carrying Capacity
- Environment Management Plan for the Region
- Preparation of Action Plan for Mitigation of Pollution in the Region
- Green Belt Development Plan.

State of Art Facilities

S. N.	EQUIPMENT	USE
1	Atomic Absorption Spectrophotometer	Trace/Heavy Metals
2	Gas Chromatograph	Analysis of Pesticides, Insecticides, Phenolic Compounds, VOC etc.
3	Flame Photometer	Analysis of Sodium, Potassium
4	VOC Monitor	Monitoring of Volatile Organic Compounds
5	Respirable / High Volume Sampler	Sampling of Suspended Particulate Matter, PM10, PM2.5, SO2 , NOx
6	Work Place Handy Sampler	Particulate and Gaseous Sampling
7	Personal Computers	Prediction Modelling, Desk Top Publishing and Data Base Management
8	UV Spectrophotometer	Estimation of Various Ions
9	Multigas Detection Monitor	Quick Quantitative Detection of Gaseous Conc.
10	Noise Dosimeter	Noise Dosage at Work Place
11	Ambient Carbon Monoxide Analyser	In-situ Measurement of Carbon Monoxide in Ambient Air
12	Meteorological Monitoring Station	Continuous Recording of Meteorological Parameters
13	Flue Gas Analyser	Emission of SO2, NOx, CO, HC and Combustion Efficiency
14	Oxygen meter	Oxygen Level

S. N.	EQUIPMENT	USE
15	LUX meter	Illumination
16	Heat Stress Meter	Heat Stress
17	Bacteriological air sampler	Bacteriological Contamination in Air
18	Sound Level Meter with Octave Filters	Monitoring of Noise Levels
19	Membrane Filtration Assembly	Bacteriological Studies
20	Multigas monitor	Monitoring of Work Place Air Pollutants
21	Turbidity meter	Turbidity
21	pH meter	pH
23	Conductivity Meter	Conductivity
24	Rapid Response COD apparatus	Quick Estimation of COD
25	Respirometer	Evaluation of ETP, Design Parameter by Bio Treatability Test.
26	Hand Held Photosynthetic Analyser	Carbon Budget for Plant & Soil for Carbon Capture
27	Microbiological field test lab	Analysis of Microbiological Parameters in field (in-situ Condition
28	Potentiometric/KF titrator	Determination of Water Content in Used Oil
29	Digital Microscope	Use in Biomonitoring, Anatomical Research Work
30	Automatic Electronic Colony Counter	Determination of Bacterial Density
31	Six Digit Weighing Micro balance	Measurement upto 1 Micro gram

Representation in National Bodies

- Environmental Protection Sectional Committee (CHD-13, CHD-32 & CHD-36) of Bureau of Indian Standards.
- Central Pollution Control Board-Environmental Laboratory under Environment (Protection) Act, 1986
- State Pollution Control Boards
- Department of Science & Technology, Govt of India-In-House R&D unit of BHEL
- Member Task Force constituted by CPCB for implementation of environmental standards in Thermal Power Plant

Services Offered

- Environmental Impact Assessment Studies
- Environmental Auditing
- Regional Environmental Studies
- Environmental Management Plan for Urban Areas
- River Water Quality Assessment
- Lake Water Quality Assessment & Rejuvenation/ Conservation Plan
- Monitoring and Analysis of Pollutants in Air, Water, Noise and Solid Waste Samples
- Monitoring of Occupational Health, Safety and Environmental Parameters and Facilitation for HSE Certification
- Fugitive Emission Monitoring and Assessment
- Heavy Metals Emission Monitoring
- Consultancy Services for Air, Water Pollution Control & Solid Waste Management
- Performance Evaluation of Air & Water Pollution Control Systems
- Performance Evaluation of Flue Gas Desulphurization (FGD) Systems in Thermal Power Plants
- Source Apportionment Studies
- Selection and Assessment of Hazardous Waste Disposal sites
- Risk Analysis & Preparation of Disaster Management Plan
- Setting up of Environmental and Chemical Laboratory in Thermal Power Projects/Industries
- Design and Development Installation of Air Pollution Control Towers
- R&D to evolve Technologies to Control Pollution
- Training & Development of Professionals engaged in Environment Protection and Pollution Abatement

Valued Customers

- Bhabha Atomic Research Centre (BARC)
- Bharat Electronics Limited (BEL)
- Bharat Petroleum Corporation Limited (BPCL)
- Central Pollution Control Board
- Chhattisgarh State Power Generation Company Limited
- Damodar Valley Corporation Limited
- Department of Science and Technology
- Government of Uttarakhand – The Swajal Project
- Gujarat State Electricity Corporation Limited
- Hero MotoCorp Limited
- Indian Drugs Pharmaceutical Limited
- Indian Oil Corporation Limited
- ITC Limited, Hardwar
- Jai Prakash Power Ventures Limited
- Karnataka Power Corporation Limited
- Maharashtra State Power Generation Company Limited
- Maruti Suzuki India Limited
- Ministry of Environment and Forest and Climate Change, New Delhi
- National Thermal Power Corporation
- Indian Oil Corporation Limited
- Oil & Natural Gas Corporation Limited
- Punjab State Power Corporation Limited
- Rajasthan Rajya Vidyut Utpadan Nigam Limited
- Shriram Pistons & Rings Limited, Ghaziabad
- Tamil Nadu Generation and Distribution Corporation Limited
- Tehri Hydro Development Corporation
- Telangana State Power Generation Company Limited
- U.P. Rajya Vidyut Utpadan Nigam Limited.
- Uttarakhand Environment Protection & Pollution Control Board
- W.B. Power Development Corporation Limited, Kolkata

AIR POLLUTION CONTROL TOWER

ADDRESS ALL ENQUIRIES TO:

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