PROFORMA

RECOGNITION OF LABORATORY UNDER THE ENVIRONMENT (PROTECTION) ACT, 1986

(To be filled in by all existing laboratories to be considered for recognition as Environmental Laboratories under the Environment Protection Act, 1986)

1. General

| (i) | Name of Organization | : | | | | | |
|-------|---|---|--------------------------------------|---|--------------------|------------|---------------------------------|
| (ii) | Name of the Laboratory | : | | | | | |
| (iii) | Address | | | | | | |
| | a) Postal | : | | | | | |
| | | | | | | | |
| | | | | | | | |
| | b) Telephone | : | | | | | |
| | c) Fax | : | | | | | |
| | d) E-mail | : | | | | | |
| (iv) | Year of establishment of organization | : | | | | | |
| (v) | Year of establishment of environmental laboratory/wing | : | | | | | |
| (vi) | Type of Organization (Please tick the appropriate to your Organization) | : | Government | | Autonomous | | Public Sector |
| | | | Pollution Control Board/Committee |) | Educa (Govt./Go | tio vt. | nal Institute added/private) |
| | | | Private | | NGO | | Any other |
| | | | | | | | |

(vii) If laboratory/organization is private/NGO, give details:

| | a. | Whether registered voice or central govt. authors | vith local, state prities | : Yes / No |
|--------|--------|---|---|---|
| | b. | If yes, mention Regis | stration No. and date |): |
| | C. | Nationality of owner/ Organization | head of the | : |
| | d. | Laboratory is located | I in (tick relevant) | Commercial/Business complex Residential area Industrial area Other |
| | e. | Laboratory is situated approved area notified | d in authorized/ ed by the govt. | : Yes / No |
| (viii) | Objec | ctives & scope of the o | rganization* | |
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| | | | | |
| | (Pi | lease indicate, among othe | ers, whether it includes s services) | pecialized testing, measurement, |
| (ix) | Head | of the Organization : | | |
| | a) Na | me | : | |
| | b) De | signation | : | |
| | c) Ad | dress | : | |
| | | | | |
| | | | | |
| | d) Te | lephone | : | |
| | e) Fa | x No. | : | |
| | f) E-r | nail | • | |

(x) Laboratory Incharge, if different than (ix) above.

| a) Name and Designation | • | |
|-------------------------|-----|--------|
| b) Address | : | |
| | | |
| | | |
| c) Telephone: | Fax | E-mail |

(xi) Name of accreditation body(s)/organization i.e. ISO, NABL, GLP, SPCB's, PCC's etc. from which the laboratory has been already recognized/accredited, give details.

| S. No. | Name of the certification/recognition body/organization | Accreditation / recognition granted for the activities | Environmental Parameter covered | Validity up to |
|-----------|---|---|------------------------------------|-------------------|
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- (xii) If applied for renewal of laboratory recognition under EPA, 1986, give previous recognition details:
 - a. Validity period

: From _____ to _____

- b. Reference of Gazette notification :
- c. CPCB/MOEF reference No.
- (xiii) Whether laboratory ever been de-recognized before its validity period of recognition under The Water Act, 1974, The Air Act, 1981 and The E(P) Act, 1986 by State Pollution Control Board/Pollution Control Committee/Central Government/ CPCB, if yes, give details:

:

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2. Infrastructural details of Laboratory: (please enclose brief lay out plan map of laboratory) with organizational chart and laboratory position in there to:

| (i) | Total floor space of the environmental laborate | ory (in sq. mtr): | · |
|-----|---|-------------------|---------|
| | a) Water Laboratory | = | Sq. mtr |
| | b) Biological & Microbiological Laboratory | = | Sq. mtr |
| | c) Air Laboratory | = | Sq. mtr |

- d) Provide scanned photograph of above with layout plan.
- (ii) Details of major projects undertaken pertaining to environmental studies: [Please attach separate sheet, if space is insufficient]
- (iii) Which of the following type of analytical tests are being carried out in the laboratory [please mark Yes ($\sqrt{}$)/No (x)]:
 - a) Physical
 - b) Inorganics general and non metallic
 - c) Inorganic (Trace metals)
 - d) Organics (General)
 - e) Trace Organics
 - f) Microbiological
 - g) Toxicity
 - h) Biological
 - i) Hazardous waste
 - j) Soil, sludge, sediment

- k) Hazardous waste Characterization
- I) Ambient air
- m) Source emission
- n) Air Toxics
- o) Hazardous Air Pollutants
- p) Volatile Organic Carbon
- m) Noise measurement
- n) Meteorological
- o) Vehicular emission/Auto exhaust
- (iv) Laboratory scientists/chemist or officials are fully conversant for sampling, monitoring, preservation and transportation [please tick $Yes(\sqrt{)}/No(x)$].
 - (a) Water & wastewater
 - (b) Hazardous waste
 - (c) Solid waste
 - (d) Soil
 - (e) Municipal waste
 - (f) Biomedical waste
 - (g) Ambient air/fugitive emission
 - (h) Air Toxics analysis

- (i) Hazardous Air Pollutants analysis
- (j) Volatile Organic Carbon analysis
- (k) Noise monitoring
- (I) Meteorological monitoring
- (m) Source emission
- (n) Auto exhaust monitoring
- (o) On line ambient air quality monitoring

- (v) Laboratory scientists/chemists or officials are capable of analyzing desired/ relevant parameters in various types of matrix [please tick [Yes($\sqrt{}$)/No (x)]
 - a. Liquid Samples (water & wastewater)
 - b. Solid Samples (soil/mud/solid waste/sludge etc.)
 - c. Semi-solid samples (sludge/slurry)
 - d. Gaseous samples (Ambient air, source emission, vehicular emission)
- (vi) a) Mark the parameters given in Appendix `A` which can be analyzed in the laboratory:
 - b) Mark the equipment given in Appendix `B` which are available in the laboratory:
 - c) Mark the glass apparatus/assembly given in Appendix `C`, which are available in the laboratory.
 - d) Mark the Instruments given in Appendix `D` which are available in the laboratory.
 - e) Mark the methodology employed for analysis in Appendix `E'.
 - f) Mark the Air Quality Parameters, which can be analyzed in the laboratory in Appendix `F'.
 - g) Mark the Instruments/equipment given in Appendix `G`.
 - h) Give details about instruments/equipment in Appendix `H`.
 - i) Give details about the analytical methods adopted in Appendix `I`.
 - j) Give details about the facilities available for analysis of specific organic compounds in Appendix `J`.
- (vii) Which of the methods given below are being followed for the [Tick $\sqrt{}$]:
 - (a) Water and Wastewater Analysis:
 - 1. APHA 2. BIS 3. USEPA
 - 4. ASTM 5. ISO 6. Any other
 - (b) Air Pollution Monitoring and Analysis
 - 1. APHA 2. BIS 3. USEPA
 - 4. CPCB 5. ASTM 6. ISO
 - 7. Any other

(viii) Provide details for participation in inter-laboratory (between laboratories) Analytical quality control proficiency testing programme during last 5 years. Attach copy of performance report with the application

| Coordinating Agency i.e. CPCB, WHO, NABL, SPCB/PCC etc. | Period (Month / year) | Parameter covered | Percentage of performance |
|---|--------------------------|-------------------|---------------------------|
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(ix) designation qualifications Name, and of staff/officials posted at environmental laboratory/branch (with expertise in environmental analysis/testing): (Please enclose separate sheet if space is inadequate)

| S. | Name | Designation | Qualification | Total experience in | Nature of present job assignment ($$ only) | | nt (√ only) |
|-----|------|-------------|---------------|---------------------|---|-------------|-------------|
| No. | | - | | any. Field (years & | Administrative | Supervisory | Analysis/ |
| | | | | months) | | | sampling |
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(x) Details of training programme/s related with the environment field attended within last five years by the officials working at the laboratory as mentioned at (ix)

| S. No. | Name of official/s | Training conducted by the institution/organization | Title/topic | Duration |
|-----------|--------------------|---|-------------|----------|
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(xi) Please indicate by asterisk (*) the name/s of personnel (maximum three) & having desired qualification and experience as mentioned in Annexure-IV to be considered for nomination as Govt. Analysts. Brief bio-data of these persons should be enclosed as per annexure-V.

| S. No. | Name | Designation | Qualification | Experience in years related with Environmental Analysis |
|-----------|------|-------------|---------------|---|
| | | | | |
| | | | | |

- (xii) If applied for renewal of recognition under EPA 1986, please outline steps taken for up gradation of laboratory (please attach details as annexure) during recognition period with respect to:
 - a) Procurement of new sophisticated instrument
 - b) Addition of new parameters
 - c) Participation in Analytical Quality Control (AQC) exercise of CPCB.

Signature :(Head of organization)

(Head of laboratory)

Full name :_____ (In capital letters)

Seal of laboratory

(Forward application for consideration of inspection/recognition, if fulfill minimum criteria to MOEF (Private & NGOs only) and others to CPCB at following address with duly completed applications along with enclosures)

(i) Private/NGOs/Cooperative Organization Laboratory:

Director / Addl. Director (CP Division) Ministry of Environment & Forests Paryavaran Bhawan CGO Complex, Lodi Road New Delhi-110 003

(ii) Govt./Semi-Govt./Autonomous Organization/Public Sector Undertaking and Educational Institute Laboratories:

The Member Secretary Central Pollution Control Board `Parivesh Bhavan', East Arjun Nagar Delhi - 110 032

Recognition of Environmental Laboratories under The Environment (Protection) Act, 1986

SELF ASSESSMENT CHECK-LIST BY THE LABORATORY

The laboratory should ensure that it fulfills the essential requirement and submit duly signed checklist alongwith the application for recognition under the E(P)A-1986.

{ Please Mark Yes $(\sqrt{)}$ or No (X) }

- (i) Laboratory (Private / NGO) is registered by the local govt./State Govt./ Central Govt.
- (ii) Laboratory has minimum 9 nos. of full time working skilled manpower with following qualifications:

| S. No. | Qualification | Nature of Job | Nos. of Manpower |
|-----------|---|---|---------------------|
| 1. | High School/Intermediate with Science | Assistance in sampling & analysis | 2 |
| 2. | Bachelor's Degree in Basic Science or equivalent. | Sampling and analysis | 4 |
| 3. | Master's Degree in Science or equivalent or Bachelors Degree in Engineering / Technology or equivalent or Ph.D. | Sampling & Analysis. Supervision of Analysis | 3 |
| | Total | Manpower (Minimum) | 9 |

- (iii) Environmental laboratory should have minimum 150 Sq. mtr Work Area
- (iv) Essential Parameters Requirement at Appendix 'A'.

(A) <u>Physical Tests</u>

- (a) Laboratory has facilities and expertise for 10 no's of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 3 no's of Secondary parameters.

(B) (i) Inorganic (General and non metallic)

- (a) Laboratory has facilities and expertise for 13 no's of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 3 no's of Secondary parameters.

(ii) Trace Metals

- (a) Laboratory has facilities and expertise for 15 no's of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 4 no's of Secondary parameters.

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(C) <u>Organics</u>

- (a) Laboratory has facilities and expertise for 5 no's of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 3 no's of Secondary parameters.

(D) <u>Microbiological Test</u>

- (a) Laboratory has facilities and expertise for 4 no's of Mandatory parameters.
- (b) Laboratory has facilities and expertise for 1 no of Secondary parameters.

(E) <u>Toxicological Test</u>

- (a) Laboratory has facilities and expertise for 1 no of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 1 no of Secondary parameters.

AIR PARAMETERS (Appendix F)

(A) <u>Ambient Air/ Fugitive Emission</u>

- (a) Laboratory has facilities and expertise for minimum 4 no's of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 4 no's of Secondary parameters.

(B) Stack Gases / Source Emission

- (a) Laboratory has facilities and expertise for 8 no's of Mandatory parameters
- (b) Laboratory has facilities and expertise for minimum 5 no's of Secondary parameters.

(C) Noise Level

(a) Laboratory has facilities and expertise for 2 no's of Mandatory parameters.

(D) <u>Meteorological Monitoring</u>

- (a) Laboratory has facilities and expertise for 4 no's of Mandatory parameters.
- (b) Laboratory has facilities and expertise for minimum 1 no of Secondary parameters.
- (v) (a) Laboratory has minimum no's of equipment as mentioned in brackets () of Appendix-B.
 - (b) Laboratory has minimum no's of instruments as mentioned in brackets () of Appendix-D
 - (c) Laboratory has minimum no's of equipment/ Instrument as mentioned in brackets () of Appendix-G.

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- (vi) Laboratory analyzes samples adopting validated methods i.e. USEPA, APHA, BIS, ASTM, ISO, EU, DIN or CPCB.
- (vii) Laboratory has adequate environmental journals/books/analytical methods for sample analysis.
- (viii) Laboratory has applied strictly as per the format with desired enclosures and nothing has been changed / alter in the contents of application format.
- (ix) Details of Equipments / Instruments available at the laboratory have been provided at Appendix-H.
- (x) Methods details of test parameters marked as ($\sqrt{}$) at Appendix-A & F have been provided in appendix-I and no column has been left blank.
- (xi) Name of Compounds being analyzed have been provided at Appendix–J.
- (xii) List of Reference Standards (Please refer appendix D(d) of application) with their names, makes and expiry date have been provided.
- (xiii) Proposed Govt. analysts (Please refer 2(xi) of application) fulfills the required qualification and experience and their bio-data have been submitted exactly as per Annexure-V of Guidelines.
- (xiv) Bio-data of remaining officials (please refer 2 ix) being provided as per Annexure-V of Guidelines.
- (xv) Scanned photographs of various Sections of the laboratory have been provided with the application.
- (xvi) Laboratory has provided details of participation in Inter-laboratory AQC programme conducted by CPCB as per Clause 2 (viii).
- (xvii) Duly filled application in all respect along with all enclosures with binded form in triplicate has been submitted (Private / NGOs to MoEF and others to CPCB).

Declaration:

I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed / distorted.

(Signature of the Head of the Laboratory)

Full Name:

SEAL OF THE LABORATORY

APPENDIX `A`

LIST OF PARAMETERS BEING ANALYSED

A) <u>Physical Tests</u>: [Please mark $Yes(\sqrt{)}/No(x)$]

| S. | Mandatory parameter | S. | Secondary parameter |
|-----|-------------------------------------|-----|------------------------------|
| No. | | No. | |
| 1. | Conductivity | 1. | Flocculation test (Jar test) |
| 2. | Colour | 2. | Odour |
| 3. | рН | 3. | Salinity |
| 4. | Fixed & volatile solids | 4. | Settleable solids |
| 5. | Total solids | 5. | Sludge volume index (SVI) |
| 6. | Total dissolved solids | | |
| 7. | Total suspended solids | | |
| 8. | Turbidity | | |
| 9. | Temperature | | |
| 10. | Velocity & discharge Measurement of | | |
| | industrial effluent stream | | |

Minimum required - All 10 nos. of parameters

Minimum required 3 parameters

B) Inorganic [Please mark Yes ($\sqrt{}$)/No (x)]

(i) General & Non-metallic

| S. | Mandatory parameter | S. No | Secondary parameter |
|-----|-------------------------------|----------|---------------------|
| 1. | Acidity | 1. | Bromide |
| 2. | Alkalinity | 2. | Carbon dioxide |
| 3. | Ammonical nitrogen | 3. | Chlorine demand |
| 4. | Chloride | 4. | lodine |
| 5. | Chlorine residual | 5. | Sulphite |
| 6. | Dissolved oxygen | 6. | Silica |
| 7. | Fluoride | 7. | Cyanide |
| 8. | Total hardness | 8. | Sulphide |
| 9. | Total kjehldal nitrogen (TKN) | | |
| 10. | Nitrite nitrogen | | |
| 11. | Nitrate nitrogen | | |
| 12. | Phosphate |] | |
| 13. | Sulphate | | |

Minimum required – All 13 parameters

Minimum required- Atleast 3 parameters

| S. | Mandatory parameter | S. | Secondary parameter |
|-----|-------------------------------|-----|---------------------|
| No. | | No. | |
| 1. | Boron (B) | 1. | Arsenic (As) |
| 2. | Cadmium (Cd) | 2. | Aluminium (Al) |
| 3. | Calcium (Ca) | 3. | Beryllium (Be) |
| 4. | Chromium (Cr) Total | 4. | Barium (Ba) |
| 5. | Chromium (Cr) Hexavalent | 5. | Lithium (Li) |
| 6. | Copper (Cu) | 6. | Manganese (Mn) |
| 7. | Iron (Fe) | 7. | Selenium (Se) |
| 8. | Lead (Pb) | 8. | Silver (Ag) |
| 9. | Magnesium (Mg) | 9. | Strontium (Sr) |
| 10. | Mercury (Hg) | 10. | Tin (Sn) |
| 11. | Nickel (Ni) | 11. | Antimony (Sb) |
| 12. | Potassium (K) | 12. | Cobalt (Co) |
| 13. | Sodium (Na) | 13. | Vanadium (V) |
| 14. | Sodium absorption ratio (SAR) | | |
| 15. | Zinc (Zn) | | |

(ii) <u>Trace Metals</u> [Please mark Yes($\sqrt{}$)/No (x)]

Minimum required – All 15 parameters

Minimum required – Atleast 4 parameters

(C) <u>Organics (General) and Trace Organics [Please mark Yes($\sqrt{}$)/No (x) and give details at Appendix J for Trace organics]</u>

| S. | Mandatory parameter | S. | Secondary parameter |
|-----|----------------------------------|-----|-----------------------------------|
| No. | | No. | |
| 1. | Bio-chemical oxygen demand (BOD) | 1. | Total organic carbon (TOC) |
| 2. | Chemical oxygen demand (COD) | 2. | Adsorbable organic halide (AOX) |
| 3. | Oil & Grease | 3. | Surfactants |
| 4. | Phenol | 4. | Tannin & lignin |
| 5. | Pesticide (each) | 5. | Poly-chlorinated biphenyl (PCB's) |
| | | | each |
| | (i) Organo-chlorine (BHC, DDT, | 6. | Polynuclear aromatic hydrocarbon |
| | Aldrin, Endosulphan) | | (PAH) each |
| | (ii) Organo nitrogen-phosphorous | 7. | Organic Carbon (in solid) |
| | (Malathion, methyl parathion, | 8. | Carbon/Nitrogen ratio |
| | Chloropyriphos) | | |

Minimum required – All 5 parameters

Minimum required – Atleast 3 parameters

D) <u>Microbiological Tests</u> [Please mark $Yes(\sqrt{)}/No(x)$]

| S. | Mandatory parameter | S. | Secondary parameter |
|-----|---------------------|-----|---------------------|
| No. | | No. | |
| 1. | Total Coliform | 1. | Total plate count |
| 2. | Faecal Coliform | 2. | Enterococcus |
| 3. | Faecal Streptococci | 3. | Coliphage |
| 4. | E. Coli | | |

Minimum required – All 4 parameters

Minimum required – Atleast 1 parameters

E) <u>Toxicological Tests</u> [Please mark Yes($\sqrt{}$)/No (x)]

| S. No. | Mandatory parameter | S. No. | Secondary parameter |
|-----------|--------------------------------------|-----------|--|
| 1. | Bioassay method for evaluation of | 1. | Bio-accumulation, bio magnification and |
| | toxicity using fish (90% survival of | | bio-transformation studies |
| | fish after 96 hrs in 100% effluent) | 2. | Estimation of the effect at tissue level |
| | | 3. | Measurement of toxicity using Daphnia |
| | | | or other organism |
| | | 4. | Measurement of toxicity factor using zebra fish (dimensionless toxicity test |

Minimum required – 1 parameter

Minimum required – 1 parameter

F) <u>Biological Tests</u> [Please mark $Yes(\sqrt{)}/No(x)$]

| S. No. | Parameter | S. No. | Parameter |
|-----------|---|-----------|----------------------|
| 1. | Benthic organism identification and count | 5. | Saprobity Index |
| 2. | Macrophytic identification | 6. | Chlorophyll |
| 3. | Planktonic identification count | 7. | Primary productivity |
| 4. | Measurement of various diversity index | 8. | P/R Ratio |

Minimum required – Atleast 3 parameter

G) <u>Characterization of Hazardous Waste</u> [Please mark Yes($\sqrt{}$)/No (x)]

| S. | Parameter | |
|-----|--|--|
| No. | | |
| 1. | Preparation of Leachate (TCLP extract/water extract) | |
| 2. | Corrosivity | |
| 3. | Ignibility (Flash point) | |
| 4. | Reactivity | |
| 5. | Toxicity | |
| 6. | Measurement of heavy metals/pesticides in the waste/leachate | |

Minimum required – Atleast 3 parameters

H) Soil/Sludge/Sediment and Solid Waste [Please mark Yes($\sqrt{}$)/No (x)]

| S. | Mandatory parameter | S. | Secondary parameter |
|-----|---|-----|--------------------------------------|
| No. | | No. | |
| 1. | Boron | 1. | Ammonia |
| 2. | Cation Exchange Capacity (CEC) | 2. | Bicarbonate |
| 3. | Electrical Conductivity (EC) | 3. | Calcium |
| 4. | Nitrogen available | 4. | Calcium carbonate |
| 5. | Organic carbon/matter (chemical method) | 5. | Chloride |
| 6. | рН | 6. | Colour |
| 7. | Phosphorous (available) | 7. | Exchangeable sodium percentage (ESP) |
| 8. | Phosphate (ortho) | 8. | Gypsum requirement |
| 9. | Phosphate (total) | 9. | H. Acid |
| 10. | Potassium | 10. | Heavy metal |
| 11. | SAR in soil extract | 11. | Magnesium |

| S. | Mandatory parameter | S. | Secondary parameter |
|-----|---------------------|-----|--------------------------|
| No. | | No. | |
| 12. | Sodium | 12. | Mechanical soil analysis |
| 13. | Soil moisture | 13. | Nitrate |
| 14. | TKN | 14. | Nitrite |
| 15. | Calorific value | 15. | РАН |
| | | 16. | Pesticide |
| | | 17. | Potash (available) |
| | | 18. | Sulphate |
| | | 19. | Sulphur |
| | | 20. | TOC |
| | | 21. | Total water soluble salt |
| | | 22. | Water holding capacity |

Minimum required: All 15 parameters

Minimum required: Atleast 10 parameters

Remarks:

Besides minimum instruments/equipment facilities laboratory must qualify minimum 5 essential groups i.e. A to E for water and similarly A to D for air analysis.

a) LIST OF EQUIPMENT FOR WATER / WASTEWATER ANALYSIS [Note: Please mark Yes $(\sqrt{)}/No(x)$]

| S. No. | Equipment | Yes/No | Nos. available** | | |
|-----------|--|--------|---------------------|--|--|
| | BASIC EQUIPMENTS | | | | |
| 1. | Ice Box/s* (2) | | | | |
| 2. | Filtration assembly* (1) | | | | |
| 3. | Heating Mantle | | | | |
| 4. | Stop watch | | | | |
| 5. | Hot air oven* (2) | | | | |
| 6. | Hot plate* (2) | | | | |
| 7. | Muffle furnace* (1) | | | | |
| 8. | Standard weight | | | | |
| 9. | Water bath | | | | |
| 10. | Thermometer/s* (4) | | | | |
| 11. | Refrigerator/s big size* 300 litres or above (2) | | | | |
| | SPECIFIC EQUIPMENTS | | | | |
| 1. | Autoclave* (1) | | | | |
| 2. | Bottom sampler | | | | |
| 3. | BOD Incubator* (1) | | | | |
| 4. | Centrifuge* (1) | | | | |
| 5. | Aquarium for bioassay test* (4) | | | | |
| 6. | COD Digester with aluminium heating blocks * (1) | | | | |
| 7. | Colony Counter | | | | |
| 8. | Depth Sampler | | | | |
| 9. | Digester with condensers | | | | |
| 10. | Digestion chamber* (1) | | | | |
| 11. | Dissolved oxygen sampler | | | | |
| 12. | Flocculator (Jar testing apparatus) | | | | |
| 13. | Flow meter | | | | |
| 14. | Incubator for bacteriological test* (2) | | | | |
| 15. | Laminar flow* (1) | | | | |
| 16. | Magnetic Stirrer with hot plate* (2) | | | | |
| 17. | Mechanical Shaker *(1) | | | | |
| 18. | Microwave digester | | | | |
| 19. | TKN Analyzer semi automatic with aluminum block digester | | | | |
| 20. | Ultrasonic water bath | | | | |
| 21. | Vacuum pump* (1) | | | | |
| 22. | Water purification / distillation assembly* (1) | | | | |
| 23. | Ekman Dredge | | | | |
| 24. | Water sampler | | | | |

| S. No. | Equipment | Yes/No | Nos. available** |
|-----------|---|--------|---------------------|
| 25. | Oil & Grease sampler | | |
| 26. | Water Testing kit | | |
| 27. | Chloroscope for residual chlorine | | |
| 28. | Any other equipment (please attach details on separate sheet) | | |

* Besides minimum analytical capabilities, expertise, laboratory must be equipped with these items if seeking recognition with desired nos. as mentioned against each item.

** Provide minimum numbers of items, in case exact numbers are not available.

Certified that all the above equipments are properly of _____

_____ (Name of laboratory) and procurement records/bills of instruments/equipment are available at the laboratory. The list of instruments / equipment taken on loan is appended herewith.

Signature of Laboratory Incharge

a) LIST OF GLASS APPARATUS AND DISTILLATION ASSEMBLIES [Note: Please mark Yes ($\sqrt{}$)/No (x)]

| S. No. | Particulars | Yes or No | Total nos. available |
|--------|--|-----------|-------------------------|
| 1. | Fluoride distillation assembly | | |
| 2. | Cyanide distillation assembly | | |
| 3. | Ammonia distillation assembly | | |
| 4. | Water distillation assembly | | |
| 5. | Soxlet extraction assembly | | |
| 6. | Arsenic estimation assembly | | |
| 7. | Phenol distillation assembly | | |
| 8. | Any other (please enclose details on separate sheet) | | |

Remarks: If actual figures are not available give minimum / least nos. available.

LIST OF INSTRUMENTS FOR WATER / WASTEWATER ANALYSIS a)

[Note: Please mark Yes ($\sqrt{}$)/No (x)]

| S. No. | Name of instrument | | | Total Nos. ** | | | |
|-----------|---------------------------------|------------------------------------|--|---------------|--|--|--|
| | BASIC INSTRUMENTS | | | | | | |
| 1. | Analytical Balance +* (1) 1 m | g | | | | | |
| 2. | Conductivity Meter* (1) | X | | | | | |
| 3. | Dissolved oxygen meter | | | | | | |
| 4. | pH Meter with combined glas | s electrode* (1) | | | | | |
| 5. | Turbidity meter* (1) | | | | | | |
| | S | SPECIFIC INSTRUMENTS | | | | | |
| 1. | Alpha/Beta Radioactivity Cou | Inter | | | | | |
| 2. | Atomic Absorption Spectr | ophotometer (Flame) with the | | | | | |
| | following cathode lamps + ($$ | available HCL)* (1) | | | | | |
| | (i) Aluminium | (ii) Antimony | | | | | |
| | (iii) Arsenic | (iv) Barellium | | | | | |
| | (v) Barium | (vi) Boron | | | | | |
| | (VII) Cadmium | (viii) Calcium | | | | | |
| | (ix) Chromium | (x) Copper | | | | | |
| | (XI) Iron | (XII) Lithium | | | | | |
| | (XIII) Lead | (XIV) Magnesium | | | | | |
| | (XV) Manganese (xvii) Nickel | (XVI) Mercury (XVIII) Potassium | | | | | |
| | (XVII) NICKEI (XiX) Selenium | (XVIII) FOLASSIUIT (XX) Silver | | | | | |
| | (xxi) Sodium | (xx) Strontium | | | | | |
| | (xxiii) Tin | (xxiv) Cobalt | | | | | |
| | (xxy) Vanadium | (xxvi) Zinc | | | | | |
| | () | (xxvii) Other, pl. specify | | | | | |
| 3. | Atomic Absorption Spectroph | otometer with Graphite Furnace | | | | | |
| | and Hydride Generation Syst | em | | | | | |
| 4. | Organic Halogen Analyzer (A | .OX/TOX) | | | | | |
| 5. | Binocular Microscope | | | | | | |
| 6. | Flame Photometer* (1) | | | | | | |
| 7. | Gas Chromatograph with follo | owing detector*++ (1) | | | | | |
| | - ECD-NPD | | | | | | |
| | - FID-TID | | | | | | |
| | - FPD | | | | | | |
| | - Other detector | | | | | | |
| 8. | Gas Chromatograph with Ma | ss Spectrometer (GC-MS) | | | | | |
| 9. | High Pressure Liquid Chroma | atograph (HPLC) | | | | | |
| 10. | Ion Chromatograph | | | | | | |
| 11. | Margury Applyzor Digital* (1) | (CP) Spectrometer | | | | | |
| 12. | Portable Applyzer Kit (DO a | H Tomp Cond) | | | | | |
| 13. | Provision Bolanco weighing | in, remp. Conu.) | | | | | |
| 14. | Potary Evaporator* (1) | | | | | | |
| 10. | Spectrophotomotor (Visible)* | or I litraviolet & visible* (1) | | | | | |
| 10. | Stereo Microscope | OI UILIAVIULELA VISIDLE (1) | | | | | |
| 12 | Total Organic Carbon Analyz | or | | | | | |
| 10. | Any other instruments (Place | e enclose details on senarate | | | | | |
| 13. | sheet) | e enclose details on separate | | | | | |

Besides minimum analytical capabilities, expertise, laboratory must equipped with these items if seeking / applying for recognition with desired nos. as mentioned against each item. *

** Provide minimum number of item, in case exact numbers are not available

+

++

-

All H.C.L. may not required essentially GC equipped minimum ECD, NPD & FID with capillary column. If equipped with ICP Spectrophotometer then AAS is not required essentially. Mercury Analyzer Digital may not required essentially, if Mercury is measured 1 ppb or below by AAS/ICP. _

b) LIST OF SPECIFIC EQUIPMENTS/INSTRUMENTS FOR HAZARDOUS WASTE ANALYSIS

[Note: Please mark Yes ($\sqrt{}$) /No (x)]

| S. No. | Instruments | Nos. Available |
|-----------|---|-------------------|
| 1. | Bomb colorimeter | |
| 2. | Elemental analyzer | |
| 3. | Flash point apparatus | |
| 4. | Moisture content meter | |
| 5. | Rotary evaporator | |
| 6. | Toxicity characteristic leaching procedure (TCLP) extractor | |
| 7. | Toxic Gas analyzer | |
| 8. | X-ray fluorescence (XRF) Spectrometer | |
| 9. | Zero head space extractor (ZHE) | |

c) MAINTENANCE CONTRACT STATUS OF IMPORTANT SOPHISTICATED INSTRUMENTS

[Note: Please mark Yes ($\sqrt{}$)/No (x)]

| S. No. | Name of the instrument | Repair job undertaken on Annual Maintenance contract / emergency call basis | Whether sufficient spares available |
|-----------|----------------------------------|--|--|
| 1. | AAS (Flame & Flameless) | | |
| 2. | AOX | | |
| 3. | Total Organic Carbon Analyzer | | |
| 4. | Gas Chromatograph | | |
| 5. | Water purification system | | |
| 6. | Analytical balance | | |
| 7. | Specific ion meter | | |
| 8. | Mercury analyzer | | |
| 9. | UV-Visible spectrophotometer | | |
| 10. | Alpha/Beta Radioactivity Counter | | |
| 11. | Any other | | |

d) REFERENCE MATERIAL (RMS) AND CERTIFIED REFERENCE MATERIAL (CRMS)

| S. | | Availability of RMS/CRMS | |
|-----|--|--------------------------|-------------------|
| No. | Parameters | (√/X) | Nos. of standards |
| 1. | Trace Metals | | |
| 2. | Organo-chlorine pesticides | | |
| 3. | Organo-nitrogen phosphorous pesticides | | |
| 4. | Polychlorinated Biphenyls (PCB's) | | |
| 5. | Polycyclic aromatic hydrocarbon (PAH) | | |
| 6. | Benzene, Ethylene, Toluene & Xylene | | |
| 7. | Dioxins and Furans | | |

Note: - Please enclose details on separate sheet, if space is inadequate. - Provide list of standards (RM/CRM) with their names, make & expiry date.

APPENDIX `E`

METHODOLOGY EMPLOYED FOR ANALYSIS

[Please tick $\sqrt{\text{relevant}}$ adopted method]

(A) PHYSICAL PARAMETERS

| S. No. | PARAMETER | METHOD ADOPTED |
|-----------|--|--|
| 1. | Colour | a. Visible comparison method (only potable waters) |
| | | b. Spectrophotometric Method (All) |
| 2. | Odour | Threshold odour test |
| 3. | Conductivity | Conductivity Meter |
| 4. | pH Value | Electronic (pH Meter) |
| 5. | Total solids dried at 103-105 ⁰ C | Gravimetric |
| 6. | Total suspended solids dried at 103-105 ⁰ C | Gravimetric |
| 7. | Total dissolved solids dried at 180 ⁰ C | Gravimetric |
| 8. | Fixed and volatile solids ignited at 550 0 C | Gravimetric |
| 9. | Settleable solids | Volumetric using Imhoff concentration |
| | | Gravimetric |
| 10. | Sludge volume index (SVI) | Volumetric followed by gravimetric (using Imhoff conc. and filtration device) |
| 11. | Salinity | a. Electrical conductivity method |
| | | b. Density method |
| 12. | Settled sludge volume | Volumetric |
| 13. | Turbidity | Nephelometric |
| 14. | Temperature | Thermometer |
| 15. | Velocity and discharge measurement of | a. Cross-Section-velocity Method |
| | | b. Weirs (Rectangular or V Notch or U-Notch) |
| | | c. Chemical Methods. |
| 16. | Flocculation test (Jar test) | Dosing of coagulants |
| 17. | Other Parameters (Please specify) | |

(B) INORGANIC (GENERAL & NON-METALLIC)

| S. No. | PARAMETER | METHOD ADOPTED | |
|-----------|--------------------------------|--|--|
| 1. | Acidity | a. Electrometric/Potentiometric titration | |
| | | b. Color Indicator titration | |
| 2. | Alkalinity | a. Electrometric/Potentiometric titration | |
| | | b. Color Indicator titration | |
| 3. | Ammonical Nitrogen | a. Distillation followed by colorimetric method (Nesselerization or phenate) | |
| | | b. Distillation followed by titrimetric method | |
| | | c. Distillation followed by ion Selective electrode method | |
| 4. | Bromide | Colorimetric (Curcumin or Carmine) | |
| 5. | Carbon Dioxide | a. Titrimetric | |
| | | b. Nomographic | |
| 6. | Chloride | a. Titrimetric (Argentometric or Mercuric Nitrate) | |
| | | b. Potentiometric | |
| 7. | Chlorine demand | Dosing of sampling chlorine solution | |
| 8. | Chlorine Residual | Titrimetric | |
| 9. | Cyanide | a. Distillation followed by Titrimetric | |
| | | b. Distillation followed by Colorimetric | |
| | | c. Distillation followed by Cyanide - Selective Electrode | |
| 10. | Dissolved Oxygen | a. Winkler titrimetric-azide modification | |
| | | b. Membrane electrode method | |
| 11. | Fluoride | a. Distillation followed by Colorimetric (SPADNS or Alizarin Red) | |
| | | b. Distillation followed by Fluoride selective electrodes | |
| 12 | lodine | a. Leuce Crystal violet method | |
| | | b. Amperometric titration method | |
| 13. | Total kjehldal nitrogen | a. Macro kjehldal method | |
| | | b. Semi micro kjehldal method | |
| 14. | Nitrite nitrogen | Colorimetric | |
| 15. | Nitrate nitrogen | a. Colorimetric | |
| | | b. Cadmium reduction method | |
| | | c. Electrode method | |
| 16. | Phosphate | Colorimetric | |
| 17. | Sulphate | a. Turbidimetric | |
| | | b. Gravimetric method with residual/ignition of residue | |
| 18. | Sulphide | a. lodometric method | |
| | | b. Ion selective electrode method | |
| | | c. Methylene blue method | |
| 19. | Sulphite | a. Titrimetric | |
| | | b. Phenonthralin method | |
| 20. | Silica | a. Molybdosilicate method | |
| | | b. Heterotopy blue method | |
| 21. | Total hardness | Titrimetric (EDTA method) | |
| 22. | Other parameters (pl. specify) | | |

II. TRACE METALS (Tick for applicable methods for elemental analysis)

| S. No. | Elements | Flame atomic absorption (direct) | Flame atomic absorption (extracted) | Flame photometry | Electro thermal atomic absorption | Hydride/cold vapour atomic absorption | Inductively coupled plasma (ICP) | ICP/MASS Spectrometry ICP/MS | Anodic stripping voltametry | Alternative methods (colorimetric/ titrimetric by difference etc) |
|-----------|-------------------------------------|--|--|---------------------|--|---|---|------------------------------------|-----------------------------------|---|
| 1. | Aluminium (Al) | | | | | | | | | unrerence etc) |
| 2. | Antimony (Sb) | | | | | | | | | |
| 3. | Arsenic (As) | | | | | | | | | |
| 4. | Barium (Ba) | | | | | | | | | |
| 5. | Beryllium (Be) | | | | | | | | | |
| 6. | Boron (B) | | | | | | | | | |
| 7. | Cadmium (Cd) | | | | | | | | | |
| 8. | Calcium (Ca) | | | | | | | | | |
| 9. | Chromium (total) (Cr ³) | | | | | | | | | |
| 10. | Chromium (Hexa) (Cr ⁺⁶) | | | | | | | | | |
| 11. | Cobalt (Co) | | | | | | | | | |
| 12. | Copper (Cu) | | | | | | | | | |
| 13. | Iron (Fe) | | | | | | | | | |
| 14. | Lead (Pb) | | | | | | | | | |
| 15. | Lithium (Li) | | | | | | | | | |
| 16. | Magnesium (Mg) | | | | | | | | | |
| 17. | Manganese (Mn) | | | | | | | | | |
| 18. | Mercury (Hg) | | | | | | | | | |
| 19. | Nickel (Ni) | | | | | | | | | |
| 20. | Potassium (K) | | | | | | | | | |
| 21. | Selenium (Se) | | | | | | | | | |
| 22. | Silver (Ag) | | | | | | | | | |
| 23. | Sodium (Na) | | | | | | | | | |
| 24. | Sodium Absorption Ratio | | | | | | | | | |
| | (SAR) | | | | | | | | | |
| 25. | Strontium (Sr) | | | | | | | | | |
| 26. | Tin (Sn) | | | | | | | | | |
| 27. | Vanadium (V) | | | | | | | | | |
| 28. | Zinc (Zn) | | | | | | | | | |

Total nos. of metal analysis claimed _____;
 Metal digestion method adopted (pre treatment (please tick appropriate)

(a) Using hot plate(b) Closed loop system(c) Microwave digestion

ORGANIC (GENERAL) & TRACE ORGANICS [Please mark Yes ($\sqrt{}$) /No (x) for adopted method] C.

| S. No. | PARAMETER | METHOD | |
|--------|---|--|--|
| | | GENERAL | |
| 1. | Bio-chemical Oxygen Demand (BOD) | a. Three days BOD at 27 °C | |
| | | b. Five days BOD at 20 °C | |
| 2. | Chemical oxygen demand (COD) | a. Open reflux method | |
| | | b. Closed reflux titrimetric method | |
| | | c. Closed reflux colorimetric | |
| 3. | Oil & Grease | a. Grass metric (simple extraction) | |
| | | b. Soxhlet extraction | |
| 4. | Phenol | a. Distillation followed by colorimetric | |
| | | b. Chloroform extraction | |
| 5. | Adsorbable organic halogens | Adsorption pyrolysis titrimetric | |
| 6. | Organic carbon (in solids) | Rapid titrametration method | |
| 7. | Total organic carbon | a. High temperature combustion | |
| | | b. Persulphate ultraviolet or heated persulphate oxidation | |
| | | c. Wet oxidation method | |
| 8. | Surfactants a. Surfactant separation by sublation | | |
| | | b. Anionic surfactants as MBAS | |
| | | c. Non imic surfactants as CTAS | |
| 9. | Carbon/Nitrogen Ratio | By calculation | |
| 10. | Tannin & lignin | Colorimetric method | |
| | T | RACE ORGANICS | |
| 11. | Pesticides | a. Organo-chlorine (Please specify adopted method) | |
| | | b. Organo-phosphorous (Please specify adopted method) | |
| | | c. Carbamates (Please specify adopted method) | |
| | | d. Herbicides (Please specify adopted method) | |
| | | e. Fungicides (Please specify adopted method) | |
| 12. | Polychlorinated biphenyl (PCB's) | Please specify adopted method | |
| 13. | Poly nuclear aromatic hydrocarbon | Please specify adopted method | |
| 14. | Volatile Organics | Please specify adopted method | |
| 15. | Trihalomethanes | Please specify adopted method | |

MICROBIOLOGICAL TESTS (Adopted method) D.

| S. No. | PARAMETER | METHOD |
|-----------|-------------------------|------------------------------|
| 1. | Total coliform | a. Multiple tube technique |
| | | b. Membrane filter technique |
| 2. | Faecal coliform | a. Multiple tube technique |
| | | b. Membrane filter technique |
| 3. | Faecal streptococci | a. Multiple tube technique |
| | | b. Membrane filter technique |
| 4. | Enterococcus | a. Multiple tube technique |
| | | b. Membrane filter technique |
| 5. | Total plate count | a. Pore plate method |
| | | b. Spread plate method |
| | | c. Membrane filter method |
| 6. | E. Coli | a. Multiple tube technique |
| | | b. Membrane filter technique |
| 7. | Others (Please specify) | |

Ε. HAZARDOUS WASTE PARAMETERS (Adopted method)

| S. No. | PARAMETER | METHOD |
|--------|--|---|
| 1. | Preparation of Leachate (TCLP extract/water | - |
| | exilaci | |
| 2. | Determination of various parameter in Leachate i.e. metal, pesticides etc. | Methods as prescribed in water analysis |
| 3. | Corrosivity | a. Electrometric (by pH meter) |
| | | b. Corrosivity toward steel |
| 4. | Reactivity | Identification of characteristic properties i.e. explosive, |
| | | reading violent, violently react with water forms potential |
| | | explosive mixture with water etc. |
| 5. | Ignitability | a. By Pen sky martens apparatus |
| | | b. By seta flash closed cap tester |
| 6. | Toxicity | Toxicity characteristics leaching procedure (TCLP) |
| 7. | Other (Please specify) | |

APPENDIX `F`

AIR QUALITY PARAMETERS

Facilities available [Please mark Yes ($\sqrt{}$)/No (x)]

A. Ambient Air / Fugitive Emissions

| S. | Group of parameter | Yes/No | Adopted method |
|------|--|---------|----------------|
| No. | | (√ / x) | - |
| (i) | Mandatory Parameters | | |
| 1. | Nitrogen dioxide as NO ₂ | | |
| 2. | Sulphur dioxide (SO ₂) | | |
| 3. | Total suspended particulate matter | | |
| 4. | Respirable suspended particulate matter | | |
| | (PM ₁₀) | | |
| (ii) | Secondary Parameters | | |
| 1. | Ammonia | | |
| 2. | Carbon monoxide | | |
| 3. | Chlorine | | |
| 4. | Fluoride | | |
| 5. | Non methane hydrocarbon | | |
| 6. | Lead | | |
| 7. | Methane | | |
| 8. | Ozone | | |
| 9. | Benzene Toluene Xylene (BTX) | | |
| 10. | Polycyclic aromatic hydrocarbon (PAH) Benzo- | | |
| | a-pyrine & others | | |
| 11. | PM _{2.5} | | |
| 12. | Volatile Organics Carbon | | |

Minimum required - At least 4 parameters from secondary parameters

B. Stack gases/source emission

| S. | Group of parameter | Yes/No | Adopted method |
|------|------------------------|---------|----------------|
| No. | | (√ / x) | |
| (i) | Mandatory Parameters | | |
| 1. | Particulate matter | | |
| 2. | Sulphur dioxide | | |
| 3. | Velocity & flow | | |
| 4. | Carbon dioxide | | |
| 5. | Carbon monoxide | | |
| 6. | Temperature | | |
| 7. | Oxygen | | |
| 8. | Oxides of nitrogen | | |
| (ii) | Secondary Parameters | | |
| 1. | Acid mist | | |
| 2. | Ammonia | | |
| 3. | Chlorine | | |
| 4. | Fluoride (Particulate) | | |
| 5. | Fluoride (Gaseous) | | |
| 6. | Hydro-chloric acid | | |
| 7. | Total Hydro carbon | | |
| 8. | Hydrogen Sulphide | | |
| 9. | Carbon disulphide | | |
| 10. | Mercaptan | | |

Minimum required - At least 5 parameters from Secondary parameter

C. Noise level

| S. No. | Group of parameter | Yes/No | Adopted method |
|-----------|---|--------|----------------|
| (i) | Mandatory Parameters | | |
| 1. | Noise level measurement (20 to 140 dba) | | |
| 2. | Ambient Noise & Source specific noise | | |

D. Meteorological Monitoring

| S. | Group of parameter | Yes/No | Adopted method |
|------|---|--------|----------------|
| No. | | | |
| (i) | Mandatory Parameters | | |
| 1. | Ambient Temperature | | |
| 2. | Wind direction | | |
| 3. | Wind speed | | |
| 4. | Relative Humidity | | |
| (ii) | Secondary Parameters (Minimum required at | | |
| | least one parameter) | | |
| 1. | Solar radiation | | |
| 2. | Rain fall | | |

E. Vehicular Emission Monitoring

| S. No. | Group of parameter | Yes/No | Adopted method |
|-----------|---------------------------------|--------|----------------|
| (i) | Mandatory Parameters | | |
| 1. | Carbon monoxide | | |
| 2. | Smoke Density | | |
| 3. | Hydrocarbon | | |
| (ii) | Secondary Parameters (Optional) | | |
| 1. | Oxides of Nitrogen | | |

Remark: Laboratory seeking recognition must qualify minimum 4 groups A to D groups of parameters with appropriate space requirement, skilled manpower and adequate infrastructure facilities.

APPENDIX-G

LIST OF EQUIPMENT/INSTRUMENTS

[Please mark Yes $(\sqrt{)}/No(x)$]

| S. No. | Instrument | Yes/No | If yes, give Total Nos. ** |
|-----------|---|--------|-------------------------------|
| 1. | BTX analyzer (PID/FID detector) | | |
| 2. | BTX calibrator | | |
| 3. | Charcoal Tubes | | |
| 4. | CO Analyzer (Non-dispensive Infrared principle) | | |
| 5. | Detector Tubes with Pump of different pollutants (Please specify details) | | |
| 6. | Dust analyzer (Beta Attenuation/TOEN) | | |
| 7. | Exhaust CO/HC analyzer | | |
| 8. | Flue gas analyzer | | |
| 9. | Gas Chromatograph with Air sampling port, FID & PFPD detectors | | |
| 10. | Handy sampler for gaseous monitoring* (2) | | |
| 11. | High Volume sampler with flow controller (4) | | |
| 12. | Low flow pump | | |
| 13. | Meteorological sensors with mast (WS, WD, Temp., Humidity)* (1) | | |
| 14. | Micro balance (Readability 1 µg) | | |
| 15. | Multi calibration system | | |
| 16. | Multi channel recorder | | |
| 17. | Multi calibration kit (portable) | | |
| 18. | Noise level meter* (2) | | |
| 19. | NO-NO ₂ -Nox Analyzer (Chemiluminescence based) | | |
| 20. | Ozone analyzer (Ultraviolet) | | |
| 21. | Permeation tubes for calibration | | |
| 22. | RSPM sampler with flow controller/brush less motor + calibration kit* (4) | | |
| 23. | Smoke density meter | | |
| 24. | SO ₂ Analyzer (Pulsed Fluorescence based) | | |
| 25. | Soap bubble meter | | |
| 26. | Stack monitoring kit with High Temp. Probes* (2) | | |
| 27. | Toddler Bags | | |
| 28. | Wet gas meter | | |
| 29. | Any other (please specify) | | |

LIST OF INFRASTRUCTURAL EQUIPMENT/ITEMS FOR AIR ANALYSIS

[Please mark Yes $(\sqrt{)}/No(x)$]

| S. No. | Items | Yes/No | If yes, give Total Nos.** | | |
|-----------|---|--------|------------------------------|--|--|
| 1. | Air conditioner (split type) | | | | |
| 2. | Air Conditioner (Window type) | | | | |
| 3. | Breathing apparatus | | | | |
| 4. | Cold room far sample storage | | | | |
| 5. | Computer with printer | | | | |
| 6. | Constant voltage transformer | | | | |
| 7. | Face shield and helmet | | | | |
| 8. | Gas mask Gas mask | | | | |
| 9. | Refrigerator (frost free, CFC free) | | | | |
| 10. | Tool Kit (Electrical & Mechanical) | | | | |
| 11. | Uninterrupted power supply (UPS) system | | | | |
| 12. | First aid box | | | | |
| 13. | Trolley for sample transportation | | | | |
| 14. | Fume Hood | | | | |
| 15. | Exhaust System | | | | |
| 16. | Fire Extinguisher | | | | |
| 17. | Electricity Generator | | | | |
| 18. | Gas Cylinder Trolleys | | | | |
| 19 | Any other (please specify) | | | | |

** Provide minimum numbers of items, in case exact numbers are not available
* Besides minimum analytical capabilities, expertise laboratory must equipped with these items, if seeking / applying for recognition with desired numbers as mentioned against each item.

<u>Appendix H</u>

Details of equipment/instruments available in the Laboratory

(Please enclose separate sheet if space is inadequate)

| S. No. | Instrument/Equipment | Make/Model | Procurement document/bills available (√/x) | Standard operating procedure (SOP's) available (√/x) | Measuring range | Accuracy % ± | Month & year of purchase | Month & year placed in service | Calibration Status Internal/External |
|-----------|-----------------------------|------------|--|--|--------------------|-----------------|--------------------------------|-----------------------------------|---|
| 1. | AAS | | | | | | | | |
| 2. | GC | | | | | | | | |
| 3. | Flame photometer | | | | | | | | |
| 4. | Mercury analyzer | | | | | | | | |
| 5. | BOD incubator | | | | | | | | |
| 6. | Analytical balances | | | | | | | | |
| 7. | Autoclave | | | | | | | | |
| 8. | pH meter | | | | | | | | |
| 9. | Conductivity meter | | | | | | | | |
| 10. | Bacteriological incubator | | | | | | | | |
| 11. | Spectrophotometer (visible) | | | | | | | | |
| 12. | Turbidity meter | | | | | | | | |
| 13. | Noise level meter | | | | | | | | |
| 14. | High volume sampler | | | | | | | | |
| 15. | Stack monitoring kit | | | | | | | | |
| 16. | RSPM sampler | | | | | | | | |
| 17. | Meteorological sensor | | | | | | | | |

(Please provide details on separate sheet, if space is inadequate)

* If external, mention date of calibration validity.

<u>Appendix I</u>

METHOD DETAILS OF TEST PARAMETERS MARKED AS $\sqrt{}$ AT APPENDIX A TO F

(Please enclose separate sheet, if space is inadequate)

| S. No. | Parameter | Method adopted (Please provide method details viz. Method Nos., page details) | Measuring Range | Minimum Detection Limit (MDL) | SOP's Available (√/x) |
|--------|-----------|---|--------------------|----------------------------------|--------------------------|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |
| 9. | | | | | |
| 10. | | | | | |
| 11. | | | | | |
| 12. | | | | | |
| 13. | | | | | |
| 14. | | | | | |
| 15. | | | | | |
| 16. | | | | | |
| 17. | | | | | |

Please provide the name of compounds being analyzed in the laboratory using Gas Chromatography technique for the following groups:

| | Pesticides | | Polychlorinated | Polynuclear | | Benzene | | |
|-----------|---------------------|-----------------------------|-----------------|----------------------|--------------------------------|---------------------|---------------------------------|-----------------|
| S. No. | Organo- chlorine | Organo Nitro phosphorous | Carbonates | Biphenyls (PCB's) | aromatic hydrocarbon PAH | Dioxins & Furans | ethylene toluene & Xylene | Trihalomethanes |
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Attachments

1. Provide coloured scanned photograph showing inner view / work area of the laboratory for the following sections.

| Water and Wastewater Section | Microbiology Section |
|------------------------------|---------------------------------------|
| Instrumentation Section | Air and Emission Testing Section |
| Library / Conference Room | Outer view of the laboratory building |

2. Enclose Layout Plan of the laboratory with the application.

ANNEXURE - III

TERMS & CONDITIONS FOR RECOGNITION OF LABORATORIES UNDER THE ENVIRONMENT (PROTECTION) ACT, 1986

The following terms and conditions shall be observed for recognition of laboratories under Section 12 (1) (b) of the Environment (Protection) Act, 1986.

- 1. The laboratory (Private/NGOs) shall be legally identifiable and registered with an appropriate statutory body i.e. local govt., state govt. or central govt.
- 2. The laboratory shall perform all the functions as mentioned in Rule 9 of the Environment (Protection) Rules, 1986.
- 3. It shall carry out the tests as per the method prescribed by the Central Government of any authorities constituted under Section 3 (3) of the Environment (Protection) Act, 1986 from time to time.
- 4. The test report shall be recorded in Form III of the Environment (Protection) Rules 1986 in triplicate. It shall be signed by the Government Analyst and be sent to the officer from whom the sample is received by the laboratory.
- 5. It shall carry out those tests, which are specified in APPENDIX-A to F of the application and it shall not carry out any other test on the samples given.
- 6. The laboratory shall charge rates not exceeding those fixed for EPA recognized laboratories.
- 7. The laboratory shall not charge rates higher than the rates they charge to any other Government or Public Sector organization.
- 8. The laboratory shall ensure that a sample submitted to it for testing will only be tested by a person, recognized as `Government Analyst' by Central Government under provisions of the Environment (Protection) Act and as notified in the official gazette from time to time.
- 9. When a Government Analyst ceases to be in the services of the Laboratory, the Head of the Laboratory shall report this fact to the Central Government within fifteen days and simultaneously take steps for filling up this vacancy.
- 10. Any report signed by the Government Analyst may be used as evidence of facts in a court of law as per Section 14 of the Environment (Protection) Act, 1986. The laboratory shall provide all facilities to the `Government Analyst' for giving evidence in a court of law, if it becomes necessary.
- 11. It shall maintain complete secrecy in respect of the test results. These shall not be divulged to any person or authority other than the Officer empowered under Section 11 of the Act of the court having jurisdiction.

- 12. Laboratory shall remain open for all working days except weekly off, Central & State Govt. holidays. Environmental laboratory of an educational institute/college will make arrangement of acceptance of samples and their analysis during any vacation exceeding more than 5 days i.e. summer/winter vacation etc.
- 13. It shall maintain proper records and registers and the calculations and test results in respect of tests conducted by them.
- 14. The laboratory and the Government Analysts employed by the laboratory shall participate in (Analytical Quality Control Exercises) organized by the Central Government or an organization designated by it to test the capabilities of the recognized laboratories and analysts from time to time. The fee if so, for AQC exercise has to be paid by the participating laboratory to the designated organization.
- 15. If feel necessary, Central Government will send dummy environmental samples to the laboratory to keep constant check over the laboratories of the results of the sample, which are to be analyzed, free of cost by the laboratory and results will be provided to the Central Government.
- 16. If the laboratory is sent samples from an establishment with which it has got connections through ownership or other means which make it improper for the laboratory to carry out the tests with respect to that sample, it shall disclose the fact to the empowered officers or authority sending the sample and shall refuse the samples.
- 17. It shall be the responsibility of the laboratory to maintain properly the necessary infrastructure for conducting tests successfully.
- 18. In case the laboratory desires to make a mention of its recognition as environmental laboratory in its letter heads, printed material, signboards, etc., it shall specify the period of recognition and such mention of the recognition shall cease immediately after the expiry of recognition.
- 19. The laboratory shall comply with all the rules and regulations notified under the Environment (Protection) Act, 1986.
- 20. The recognition shall become effective from the date of its Gazette Notification up to a period of five years or revocation whichever is earlier.
- 21. The Central Government / CPCB shall have the right to de-recognize the laboratory at any time in public interest without assigning any reason, if it is deemed necessary by the Central Government.
- 22. Private/NGO's laboratory shall maintain complaint register (bounded and numbered) having the following columns

| Customer's name and address | Ref. No. if any | Date on which sample received | Name of complainer | Complaint has been rectified in the laboratory |
|--------------------------------|-----------------|----------------------------------|-----------------------|--|
| | | | | |

- 23. The recognition accorded to Government Analysts in an environmental laboratory ceases along with the de-recognition of that environmental laboratory.
- 24. Each of environmental sample test report provided by the private laboratory to the customer must give in their footnote regarding availability of complaint register with the owner.
- 25. (a) The recognised laboratories shall operate from the approved location / address, where it has been granted recognition.
 - (b) The proposal for change in location / site address of laboratory, if any, will require prior permission from the Central Govt. (for Private Sector and NGO laboratories) and Central Pollution Control Board (for Govt. / Semi-Govt. / Autonomous / Public Sector Undertakings / Educational Institutes / State Pollution Control Board / Pollution Control Committee Laboratories).
 - (c) The recognized laboratory in case of shifting from its original registered address has to apply afresh.
- 26. In case of takeover of a recognized private laboratory, its ownership changes; occurrence of such changes must be communicated to the recognition body MOEF/CPCB within one month. Through, an appropriate mechanism that the laboratory continues to comply with the criteria against which recognition was originally granted will be verified.
- 27. After recognition, laboratory can be re-inspected at any time for its periodic assessment/performance.

The aforesaid terms and conditions are acceptable to us.

Dated:

Signature

(Head of Laboratory)

Full Name _____ (in capital letters) Address _____

Seal of laboratory

ACKNOWLEDGEMENT RECEIPT FOR THE LABORATORY

I hereby acknowledge the receipt of the Central Pollution Control Board, (Ministry of Environment & Forests) Letter No.______dated_____ regarding the recognition of our laboratory as Environmental Laboratory under Section 12 of the Environment (Protection) Act, 1986.

I accept the terms & conditions mentioned in the MOEF/Central Board's letter cited.

Dated : _____

Signature ______(Head of laboratory)

Full name ______(in capital letters)

Address : _____

SEAL OF THE LABORATORY

ACKNOWLEDGEMENT RECEIPT FOR THE LABORATORY

I hereby acknowledge the receipt of the Central Pollution Control Board, (Ministry of Environment & Forests) Letter No.______dated_____ regarding the recognition of our laboratory as Environmental Laboratory under Section 12 of the Environment (Protection) Act, 1986.

I accept the terms & conditions mentioned in the MOEF/Central Board's letter cited.

Dated : _____

Signature _____(Head of laboratory)

Full name _____ (in capital letters)

Address : _____

SEAL OF THE LABORATORY

ANNEXURE - IV

TERMS AND CONDITIONS FOR RECOGNITION OF GOVERNMENT ANALYSTS UNDER THE ENVIRONMENT (PROTECTION) ACT, 1986

- 1. A person working as analyst in a laboratory recognized as Environmental Laboratory under the Environment (Protection) Act, 1986 may be recognized as a Government Analyst if he has the qualifications and experience as prescribed in the Rule 10 of the Environment (Protection) Rules, 1986.
- 2. The recognition of a Government Analyst is with respect to the laboratory where he is employed at the time of recognition and which is recognized as an environmental laboratory under Section 12 of the Environment (Protection) Act, 1986. If he ceases to be in the services of the said laboratory, his recognition ceases forthwith from the date of termination of his service with the laboratory.
- 3. The recognition accorded to the Government Analyst in an Environmental Laboratory ceases along with the de-recognition of that environmental laboratory.
- 4. The recognition shall become effective from the date of Gazette Notification up to a period of five years or revocation, whichever is earlier.
- 5. The Government Analyst shall participate in any `Round Robin Test' organized by the Central Government or an organization designated by it for testing his capabilities for conducting various environmental tests.
- 6. It shall be the responsibility of the Government Analyst to see that the instruments necessary for conducting various environmental tests are properly maintained and calibrated.
- 7. The test report by the Government Analyst submitted to the appropriate authority shall bear the seal of the laboratory.
- 8. The Government Analyst shall appear in a court of law for giving evidence, if required by the appropriate court / Central Govt.
- 9. The Government Analyst shall maintain complete secrecy in respect of test results.
- 10. The Government Analyst shall comply with the rules and regulations notified under the Environment (Protection) Act, 1986.

11. The Central Government shall have the right to derecognize the Government Analyst any time in public interest without assigning any reason.

The undersigned accept the above terms and conditions for recognition as Government Analyst.

| 1. Signature | |
|--------------|------|
| Name | |
| 2. Signature | |
| Name | |
| 3. Signature | |
| Name | |

ACKNOWLEDGEMENT RECEIPT FOR THE ANALYST

I hereby acknowledge the receipt of the Central Pollution Control Board, (Ministry of Environment & Forests, Govt. of India) Letter No.______dated ______ enclosing the terms and conditions for recognizing me as a Government Analyst under Section 13 of the Environment (Protection) Act, 1986.

I accept the terms and conditions mentioned in the Central Board's letter cited.

Place :

Signature_____

Name _____

Address :_____

SIGNATURE ATTESTED

Signature of the Head of the Laboratory

SEAL OF THE LABORATORY

BIO-DATA PROFORMA FOR CONSIDERATION OF RECOGNITION AS GOVT. ANALYST UNDER THE ENVIRONMENT (PROTECTION) ACT, 1986

| 1. | Name in full (In block letters) | : | |
|----|---------------------------------|--------|--------|
| 2. | Father's name | : | |
| 3. | Date of birth | : | |
| 4. | Nationality | : | |
| 5. | Permanent Address | : | |
| | | | |
| | | | |
| | | | |
| 6. | Tel No | _Fax _ | E-Mail |

7. Educational qualification (Give detail in chronological order from graduation & onward):

| S. No. | Exam passed | Name of Board/ University/ Institution | Year of passing | Subjects taken | Division |
|-----------|-------------|---|--------------------|----------------|----------|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |

8. Professional Training taken during last 3 years:

| S. | Organization | Period of training | | Subject of the training | |
|-----|--------------|--------------------|----|-------------------------|--|
| No. | Organization | From | То | Subject of the training | |
| | | | | | |
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9. Previous and current employment records:

| S. No. | Name & address of employer | Type of organization Govt./Semi-Govt./ Public Sector/ Private/NGO | Period of service | | Post | Salary | Job | Reason |
|-----------|-------------------------------|--|-------------------|----|------|--------|--------|---------|
| | | | From | То | held | drawn | nature | leaving |
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Note: Please attach separate sheet, if space is inadequate.

- 10. Experience in Analysis of Environmental Samples ______ years.
- 11. Please provide details if earlier appointed / recognized as Govt. Analyst under The Environment (Protection) Act, 1986:
- 12. Declaration:

I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed / distorted. Documents in support of my educational qualification and experience will be provided, if required so.

Place:

Date:

(Signature of candidate)

Signature of the Head of the Laboratory

SEAL OF THE LABORATORY