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## **Bylaws for Grey Water Reuse in Housing & Commercial Complexes in Navi Mumbai (Draft), 2010**

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**ANNEXURE – ‘A’**

**NAVI MUMBAI MUNICIPAL CORPORATION**

**DRAFT**

**BYE LAWS**

**FOR**

**GREY WATER REUSE**

**IN**

**HOUSING & COMMERCIAL**

**COMPLEXES IN NAVI MUMBAI**

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## 1. Definitions

### 1. In this Byelaws:

'Access point' means a place where access may be made to a private sewer for inspection (including sampling or measurement), cleaning or maintenance that meets the requirements of the municipal norms in that respect and also termed as an opening before "discharge"

'Approved' means approved in writing by an authorised officer of the NMMC.

'Authorised officer' means any person appointed by the Municipal Commissioner of NMMC for the purposes of acting as an authorised officer under this Byelaw.

'Characteristic' means any of the physical or chemical characteristics of an commercial waste or/domestic waste.

'Conditional commercial waste' means commercial waste that has, or is likely to have, characteristics which exceed any of the controlled waste characteristics defined, but which does not exceed any characteristics of a prohibited commercial waste.

'Discharge Management Plan' means a plan for the monitoring, programming and controlling of the effluent from recycling water treatment plant and discharges in to the municipal sewage system.

'Discharge' or 'Discharge of wastes' means the removal of wastes from an commercial plant or other premises into the Grey Water system or by means of the system;

'Disconnection' means the physical cutting and /or sealing of the private sewer from the wastewater system.

'Domestic Wastewater' means either wastewater that is typically discharged from premises that are used solely for residential activities or wastewater of the same character discharged from other premises.

'Grey water' means involving water from sinks, tubs, showers and washing.

'Commercial premises' means any premises which is being used or intended to be used (whether for profit or not) for carrying on any trade, business, education, research or industry.

'Commercial Waste' or 'Wastes' are the waste removed from an commercial plant or other premises by way of discharge any liquid, with or without matter in suspension or solution therein, that is or may be discharged from trade premises in the course of any trade or commercial process or operation or in the course of any activity or operation of a like nature.

'Inspector' includes whomever the Municipal Commissioner has appointed in writing for the purposes of this Byelaw;

'ISO 5667' means the latest edition, complete with any amendments, of International Standard ISO 5667: 1994 Water Quality - Sampling:

Part 1: 1980 Guidance on the design of sampling programmes.

Part 2: 1991 Guidance on sampling techniques.

Part 3: 1994 Guidance on the preservation and handling of samples.

Part 10: 1992 Guidance on sampling of Grey Waters.

'ISO TR 9824' means the latest edition, complete with any amendments, of International Standard ISO TR 9824: Measurement of liquid flow in open channels:

Part 1: 1990 Measurement of free surface flow in closed conduits - Methods.

Part 2: 1990 Measurement of free surface flow in closed conduits - Equipment.

'Laboratory' means the agency permitted to test the samples of commercial wastes or waste.

'License' means the license, issued and renewed annually for the discharge of commercial wastes or other waste, given in writing by the Municipal Commissioner for purposes of this byelaw;

'Mass limit' means the total mass of any characteristic that is allowed to be discharged to the wastewater system over any twenty-four hour period from any single point of discharge or collectively from several points of discharge.

'Maximum concentration' means the peak concentration, in the wastewater, of any characteristic that may not be exceeded.

'Occupier' for the purposes of an commercial plant/housing complexes or premises whoever in fact occupies a industry/premises or part of one, either as an owner, on rent or on lease in any other way;

'Person' includes a corporation sole and also a body of persons whether corporate or incorporate or partnership firm;

'Point of discharge' is the physical point where an commercial waste or waste discharge enters the wastewater system.

'Pretreatment' means any processing of commercial waste or waste designed to reduce any characteristic in a waste, before discharge to the wastewater system.

'Notice' means a written communication issued by the Municipal Commissioner or his authorized officer to the 'occupier' of 'property' to provide the recycle facility within the premises.

**'Premises' means either:**

a property which is held under a separate card of title or for which a separate title card may be issued and in respect to which a building plans have been or may be issued, or

a building which is in possession as an individual unit by a cross-lease, unit title or company lease and for which a certificate of title is available, or

land held in public ownership, for a particular purpose, or

separately assessed to Municipal taxes, individual unit within buildings.

'Private sewer' means that section of a sewer between the premises and the sewerage system.

'Publicly notified' means published on at least one occasion in a newspaper circulating in the NMMC's territory, or under emergency conditions by the most practical means available at that time.

'Receiving waters' means coastal waters or any natural waters which will receive treated wastes.

'Sewerage System' means all types of sewers, appurtenances, pumping stations, storage tanks, wastewater treatment facility plants, marine outfalls and other related structures owned by the urban local body and used for the reception, treatment and disposal of wastewater and also termed as "wastewater system"

'Standard methods for the examination of water and wastewater' means the latest edition complete with any amendments and supplements as published by Pollution Control Board.

'Storm water' means all surface water run-offs resulting from precipitation.

'Temporary discharge' means any discharge of an intermittent or short duration. Such discharges include the short-term discharge of an unusual waste from premises subject to an existing permit and the discharge of tinkered wastes.

'Urban Local Authority' means a local municipal authority of a town, regional council, or a union of towns conforming to Article 243Q of the Constitution of India.

'Waste' means any water with matter in solution or suspension, domestic wastewater, or liquid waste and includes sewage for the purpose of this byelaw.

'Waste minimisation" means the implementation on trade premises, of operations and restrictions, appropriate to the goal of reducing or eliminating the quantity and toxicity of wastes.

"Wastewater system' means all types of sewers, appurtnances, pumping stations, storage tanks, wastewater treatment facility plants, marine outfalls and other related structures owned by the urban local authority and used for the reception, treatment and disposal of wastewater and also termed as "sewerage system".

'Zones' means the drainage catchments areas of a City that are served by separate wastewater /sewage treatment plants.

## **Section A: Grey Water reuse Byelaws**

### **1. Applicability of the Byelaws:**

- 1.1 These by laws are applicable to all housing, commercial and commercial premises which fall in one of the following categories:

Category 1: Whose plot area is more than 2500 Sq. M

Category 2: Water quota is more than 60,000 lits/day. If the ‘occupier’/‘owner’/‘cooperative society’ has more than one water connection in their name, then the water quota of all connections will be taken into account for the purpose of this by law.

Category3: Premises which has more than 80 dwelling unit of any kind

### **2. Discharge of wastes**

- 2.1 The owner or occupier of a commercial plant or other premises shall discharge wastes/sewage into the sewerage system and / or shall allow any other person to discharge the same from his plant or premises into the system.
- 2.2 Only in a manner, quantity, or quality that shall not cause damage to the sewerage system or to the flow of the sewage or to the treatment process thereof or not in excess of Municipal water supply received,
- 2.3 Only with a valid permission in accordance with the provisions of this bylaw will be allow the occupier to connect the Waste Water/sewage to the municipal sewer and claim the benefits arising out of recycling of Grey Water.
- 2.4 In a nature or manner or in a way that shall not constitute a nuisance of foul gases or cause a public hazard or otherwise in compliance of this Byelaw.
- 2.5 The recycled water shall be used for non potable, no contact purposes within premises and shall not be connected to sewage/Waste Water system of NMMC. However the waste generated by the recycle plant can be connected to NMMC sewer network if it of the accepted quality.

### **3. Enforcement of Byelaws:**

- 3.1 In case of existing properties, Municipal Commissioner or his authorized officer will issue a notice to the occupier for making arrangements of Reuse of Grey Water within specified time.
- 3.2 In case of proposed/intending/under redevelopment properties, the occupier/developer/builder submit an application directly or through his authorized consultant to the Municipal Commissioner with details of proposed

'Discharge Management Plan' along with the application for demand of water and permission to connect the Grey Water/sewage to municipal sewage system

**4. Granting a Permission**

- 4.1 Every premises/ will be granted permission for the discharge of commercial wastes or wastes to the municipal sewerage system only if the recycling measures for Grey Water and conditions set forth in Schedules to this Byelaw are fulfilled.

**5. Waste tests and their results.**

- 5.1 An occupier of an commercial plant or premises requiring a license shall provide to the Municipal Commissioner or an authorised officer once a year for the purpose of receiving a license, test results of the commercial wastes discharged from the plant or premises;
- 5.2 Without derogating the provisions specified in clause of byelaw 4, the occupier of a premises requiring a license or the occupier of a controlled plant or premises, shall provide to Municipal Commissioner test results of commercial wastes or waste discharged from the plant or premises at any time he is required in writing to do so by the Municipal Commissioner;
- 5.3 The testing of wastes and the submission of the results shall be done in a manner in accordance with the terms and conditions prescribed by the Municipal Commissioner or an authorised officer in this regard;

This byelaw does relinquish the authority of Municipal Commissioner, his agent or an authorised officer of their authority to visit the plant/premises at all reasonable time.

**6. Notice for testing of discharge.**

- 6.1 The Municipal Commissioner may order the testing of samples of commercial wastes or wastes as described in clause of byelaw 5 if he feels that the circumstances so demand, and he may, by written notice, direct the plant or premises occupier to pay the expenses of performing such tests;
- 6.2 A controlled plant whose occupier received notice as stated in clause of byelaw (5) shall comply the provisions of byelaw (4) prescribed above for that purpose.

**7. Operational Permission for the Grey Water Recycling Treatment Plant**

- 7.1 Municipal Commissioner may determine on the basis of test results of the wastes that were provided to him or that were performed at his instance or behalf, that a recycled water plant is fulfilling the requirements and will issue permission in writing to put the plant on permanent to the occupier.

7.2 The occupier shall operate the plant as specified.

**8. Industrial wastes tax.**

- 8.1 An occupier of a controlled plant requiring a license shall pay the head of the urban Local Authority a tax for the discharge of industrial wastes by meter measurement;
- 8.2 The unit rate of the tax applicable for licensed discharge of industrial waste will be determined by the Urban Local Authority.

**9. Separation of Grey water.**

- 9.1 The wastes from toilets in Commercial plant or premises will be separated from Grey water that is of bathroom and kitchen wastes by means of separate down take discharge system. The Grey water shall be recycled by providing recycling plant and shall be reused for non-potable purposes after storing the same in the distinctly separate tank by means of green coloured down take pipes. The water quality shall conform to standards of non potable water. The recycled water shall be tested once in six months and results shall be made available to Municipal Commissioner or his authorized officer whenever demanded.

**10. Conditional Waste Discharge Permission**

- 10.1 Waste discharges of the conditional type plant will be allowed on the issue of a conditional permission provided the conditional type plant has recycling and reuse of water facility and not exceeding limits given in as per MPCB norms.

**11. Mandatory notice regarding changes.**

- 11.1 An occupier of a premises shall inform the Municipal Commissioner or his authorised officer of any change in the quantity, nature or quality of the wastes discharged from his plant or premises, the manner of their discharge or extra requirement of external supply of water immediately if the change is likely to cause discharge of wastes in variation or violation of license issued under these Byelaws.

**12. Authority to change license/notice conditions.**

- 12.1 The Municipal Commissioner or his authorised officer, having given a license or a notice in writing by the authority vested in him by this byelaw, may revoke, modify or stipulate conditions to the license or notice if satisfied on inspection of the plant, premises or test reports.

**13. Interference with the Authority.**

13.1 Interference with the authority of the Municipal Commissioner or his agent or with the authorised officer is strictly prohibited.

**14. Delivery of Notice/Permission.**

14.1 Notice/Permission required by this Byelaw shall be deemed to have been delivered lawfully if it is given into the hand of their intended receiver with acknowledgement, or delivered to his place of residence or his place of occupation or place known to be so with acknowledgement, or to an adult member of his family or to an adult employee with acknowledgement, or if sent by registered mail to the same person according to his place of residence, of normal place of employment recently known to be so. If it is not possible to make the delivery as stated, the notice will be assumed to have been delivered lawfully if the notice is pasted in a conspicuous place in one of the above stated locations.

**15. Corrective action.**

15.1 Any person violating the provisions of these Byelaws shall be fined Rs.5,000/- only on the day of detection and if the violation continues shall be fined Rs.100/- only for every day as a corrective action after a written notice from the Municipal Commissioner or his authorised officer is delivered to him.

15.2 Failure to operate (as determined by the Inspector or authorized officer of NMMC from the observations of test results and/or physical verification) the recycling plant will attract a penalty of Rs. 500/- per day and /or disconnection of water connection.

**16. Authorization of officers**

16.1 Municipal Commissioner will authorize his officersinspectors and will delegate the necessary powers for carrying various duties under this byelaw.

**Section 'B'**

**Water incentive Byelaws.**

- 17. Separate plumbing for Grey water and provision of recycling for new buildings.**
  - 17.1 Every developer/builder shall provide the newly constructed building with the provision of separate downtake plumbing for Grey water, recycling water plant, storage and reuse fittings before selling the building.
- 18. Separate plumbing for Grey water and provision of recycling for existing building.**
  - 18.1 Every existing building /residential structure shall provide with the provision of recycled water plant and relevant adequate separate plumbing for Grey water and reuse fittings.
- 19. Reuse of water strictly for not potable noncontact use.**
  - 19.1 The reuse of water will be strictly for not portable use by means of providing a distinctly separate reuse system coloured in green. The non-contact uses shall be restricted to toilet flushing, drip irrigation of trees/shrubs, sub-surface irrigation of lawns, ground water re-charge & floors/street washing.
  - 19.2 The recycled water should not come in contact with the water to be used for crops.
  - 19.3 The Provisions of Mosquito Prevention bye-laws 1996 shall be Complied at the treatment Plant / Storage tank of such recycled water.
- 20. No cross-connection of potable and not potable water.**
  - 20.1 There shall not be cross-connection of fitting of the potable and not potable water at any point. The recycled water system shall be maintained at a lower operating pressure than that of the potable water system. Precautions should be taken at the make-up connection to prevent cross contamination. Precautions should be taken to ensure that the storage tank of treated water should be cleaned periodically.
- 21. Recycled water measurement.**
  - 21.1 The recycled water will be measured by means of flow meter/water meter before storing the same in a separate storage tank. The flow meter/water meter will be sealed by NMMC. The flowmeter/water meter shall be read monthly by the occupier and shall make available the results whenever demanded.

**22. Rebate in water tax.**

22.1 If the recycled quantity of water is observed to be more than 25percent of the total quantity received by the structure or residential building, then the building / residential structure would be eligible for 25 percent rebate in water taxes on reducing their potable water consumption by 25 percent. The rebate shall be reviewed every year.

**23. Rebate in Sewerage tax.**

23.1 If the Municipal Commissioner or his authorized officer certifies that the building or residential structure has successfully reduced their potable water consumption by 25 percent, the sewerage tax of the structure/residential building would be eligible for 25% rebate in the relevant period, save the extra quantity used by an commercial or a residential premises.

**24 Dispute Resolution**

24.1 All the disputes arising in the enforcement of this by law shall be referred to Municipal Commissioner who in turn will resolve the disputes in consultation with his authorized officers and intimate to the occupier/builder/developer. The decision of the Municipal Commissioner will be final and binding on the occupier.

**Section ‘C’**  
**Testing Laboratory Procedure**

**25. Waste testing procedure.**

- (a)1. Test sample container. The laboratory designated for analysing the samples shall be consulted about the type of container that shall be used for sample collection and subsequent sample storage and transportation.
- (a)2. The essential factors to be considered when selecting sample containers shall be, but not limited to, as follows :
  - (a) Good resistance to temperature extremes ;
  - (b) Good sealing efficiency to check evaporation leakage volatilization etc.
  - (c) Ease of reopening
  - (d) High resistance to breakage;
  - (e) its practical size, shape and mass;
  - (f) Availability and cost;
  - (g) Good potential for cleaning and re-use;
  - (h) Ability to be clearly labeled.
- (a)3. Plastic containers are generally recommended for most characteristics. Glass containers only shall be used in following cases.
  - (a) Oils, grease, fats etc.;
  - (b) Hydrocarbons;
  - (c) Detergents;
  - (d) Pesticides.
- (b) 1. Apparatus. The sampling procedure set out herein assumes the use of manual sampling equipment. The simplest equipment used for taking effluent samples consists of a bucket, or wide-mouthed container that may be mounted on a handle of a suitable length. The volume of the bucket or container shall be 100 ml with +5% variation or as per requirement of the test.
- (b) 2. Manual sampling equipment shall be made of an insert materials that do not influence the analyses that will be carried out on the samples later.
- (b) 3. Before starting sampling, the equipment shall be cleaned as directed by the equipment manufacturer and finally rinsed with clean water. Special attention shall be paid to rinsing after cleaning, if the analyses under study are detergents. The sampling equipment shall not be washed in the waste stream.

(c) 1. Sampling Location - In all cases when selecting sampling locations health and safety precautions shall be observed. The sampling location shall be the first manhole or other access point upstream of the point of discharge, unless, because of poor mixing or some other reason, a location giving more representative samples can be found and the location should be kept easily accessible and clean of all materials.

(c) 2. The turbulent flow conditions shall be created, if do not exist at the sampling location already, by restricting the flow, with help of a baffle or weir. The restriction shall be made in such a way that sedimentation upstream of the restriction does not occur. The sampling intake point shall always be located downstream of the restriction. The inlet of the sampling equipment shall face the direction of flow, but may face downstream if too many blockages result. If mixing is good just upstream of the obstacle, then the intake can be located there, taking care that sediment is not sampled and ensuring that the intake remains below liquid level.

(c) 3 As a general rule, the sampling point should be one-third of the wastewater depth below the surface. It may be necessary to sample the surface by skimming, in order that qualitative information about emulsified and floating material can be obtained. Guidance on the choice of suitable containers for this sampling should be sought from the receiving laboratory.

(d) Choice of Sampling Method. There shall be 3 samples types :

1) Spot (or grab) samples, (2) Composite samples, (3) Proportionate samples .

(d) 1. Spot sample. A spot sample is defined as a discrete sample taken randomly (with regard to time and/or location) from the trade waste. In a spot sample, the whole sample volume is taken at one time. Spot samples are useful for determining the wastewater composition at a certain time. In cases with small variations in the volume and composition of the composition during a longer period. The result may differ if the analyses are not carried out immediately after collection of the sample in certain cases. Guidance may therefore be sought from the laboratory in such cases.

(d)2. Composite Sample.

(d) 2.i A composite sample is defined as 2 or more samples or sub-samples, mixed together in appropriate known proportions (either discretely or continuously), from which the average result of a desired characteristic may be obtained. The proportions are usually based on time for flow measurements.

(d) 2.ii Composite samples are prepared by mixing a number of spot samples or by collection of a continuous fraction of the waste stream.

(d) 2.iii In sampling, each of the spot samples should be greater than 50ml in volume. Often it is advisable that spot samples are 200 ml to 300 ml in volume, in order to be above to collect representative samples.

(d) 2.(a) i. Instantaneous Composite Sample.

(d) 2.(a).ii An instantaneous sample is a composite sample taken using the following method.

(d) 2.(a) iii Three spot samples of the discharge shall be taken at intervals of not less than 1 minute nor more than 5 minutes. The 3 spot samples must be combined using equal volumes of all 3 samples to obtain the instantaneous sample.

(d) 2(a) iii An instantaneous sample shall be used for all routine compliance monitoring unless otherwise specified.

(d) 2. Four Hour Average Composite Sample

(d) 2.(b) i. A 4 hour average sample is a composite sample taken using the following method ;

(d) 2.(b) ii. Not less than 12 spot samples shall be taken from the discharge at reasonably even intervals over the whole period. The intervals between the samples must not be less than 5 minutes nor more than 30 minutes. The samples shall be mixed using equal volumes of all samples to obtain the 4 hour average sample.

(d) 2.(b) iii. The 4 hour flow period used when taking a 4 hour average sample shall be a continuous period of 4 hours during which the discharge is occurring and :

(d) 2.(b) iv Shall as far as practical be representative of the discharge occurring on a typical working day, and

(d) 2.(b). v Shall exclude periods of decreased discharge prior to or after the day's operations.

(d) 3 (c). Twenty Four Hour Flow Proportionate Sample.

(d). 3 (c) i A 24 hour flow proportionate sample is obtained using the following method :

(d) 3.(c). ii Spot samples shall be taken from the discharge over a continuous 24 hour period. The samples shall be taken at reasonably even intervals over the whole period. The intervals between the samples must not be less than 15minutes nor more than 60 minutes. Whenever more than one sample is taken within a 60 minute period the samples must be of equal quantity and may be stored with other samples taken during that 60 minute period in a common container.

(d) 3 (c) iii If the discharge usually flows for a period less than 24 hours then no less than 18 spot samples shall be taken as described in 1 E3.6 (a) to represent the nominated 24 hour period.

(d) 3 (c) iv. The 24 hour flow proportionate sample is then obtained by taking a part of the contents of each container and mixing all such samples together. The size of the part of each container sample that is used shall be in direct proportion to the volume of discharge that occurred from the time a sample was first placed in the particular container to the time a sample was first placed in the next container.

(e) Frequency, Number and Timing for Samples

Analyses shall be based on samples taken at regular intervals during each month (the control period).

The samples should be composite samples, unless the determinations to be carried out prohibit the use of a composite sample. The choice of the necessary number of samples taken during each control period should be decided on the basis of statistical techniques standardized in this regard but shall not be less than once per month when sampling and analysis is required.

(f) Sampling Programme.

(f) 1. The objective of a sampling programme often dictates when and how a sample is collected.

When sampling trade waste, allowance should be made for the following sources of variation in quality :

- (a) Diurnal variations ( i.e. within-day variability) ;
- (b) Variations between days of the week ;
- (c) Variations between seasonal discharges ( if applicable)

(f) . 2 If the identification of the nature and magnitude of peak load are important, sampling shall be restricted to those periods when peak loads are known to occur. The most appropriate type of sampling method (grab or composite) may be dependant on the magnitude of the variation in quality.

(f) 3. Relating the times of sampling to the particular process being monitored may be very important when considering discharges that are either seasonal or operated on a batch basis. In either case, the discharge will not be continuous and the sampling programme will need to take this fact into account. The samples shall normally be taken at fixed intervals during the whole control period. The control period shall normally be one month.

(f) 4. The following formula indicates the working day number during which sampling should take place.

After determining the intervals and the working day number, it is necessary to ensure that the sampling does not lead to any risk of systematic error, for example by always taking samples on one particular day, or by systematically omitting particular working days.

(g) Sampling Period.

(g). 1 The overall sampling period may vary from a few hours, where tracing studies on volatile organics are being monitored, to several days, where stable inorganic materials are being monitored.

(g). 2 This sub-clause deals with the selection of the period over which a composite sample has to be taken. When selecting the period, the following 2 factors should be considered:

(g) 2(a) The objective of the sampling. For example, it may be necessary to assess the average organic load in a flow over several 24-hour periods, in which case diurnal flow proportional composite samples will be adequate.

(g) 2 (b) The stability of the sample. In the example given in (a), it would not necessarily be practical to extend the compositing period for longer than 24hours, since the organic component in the sample under study may deteriorate.

(g) 3. The stability of the sample may often limit the duration of the sampling period. In such cases, reference should be made to the specific analytical techniques to be employed and the receiving laboratory should be consulted, in order that correct preservative measures can be used.

(h) Sample Preservation, Transportation and Storage.

(h). 1. The most common way of preserving wastewater samples is to cool to a temperature between 0o C and 40 C. When cooled to this temperature and stored in the dark, most samples are normally stable for upto 24 hours. For some determinants, long-terms stability may be obtained by deep freezing ( below -180 C ).

(h) 2. When collecting composite samples during extended periods, preservation should be an integral part of the sampling operation.

(h) 3. It may be necessary to use more than one sampling device, to allow both preserved and unpreserved samples to be taken.

(h) 4. The Laboratory responsible for analysing the samples should always be consulted with regard to the selection of the preservation method and subsequent transport and storage of the sample.

(i) Sample Identification and Records.

A printed form for the sampling report should as a minimum include the information mentioned in the Annexure "C".

(j) Multiple Outlets.

In premises having multiple connections to the reticulation system, individual outlets need to comply with the Byelaw (i.e. sample each individual outlet separately for compliance). In terms of charging, for each outlet measurements are made on each outlet and charged separately and no allowance is made for combining of flows.

**26.** Fees for testing samples. The Standing Committee of the ULA shall determine the rates of testing samples.

**27.** Laboratory Registration Fee. The Standing Committee of the ULA shall fixed the fees for registration of Authorised laboratory.

## SCHEDULE ‘A’

For the purpose of these BYELAWS, save whatever permitted by the Central /State Pollution Control Board to an industrial unit in question, the things mentioned in this schedule will be termed as industrial Waste.

A : 1) Gasoline; 2) benzene (C<sub>6</sub> H<sub>6</sub>); 3) all non-edible oils ; 4) combustible oils or any liquid 5) carbon tetrachloride, 6) chloroform, 7) Methyl chloride, 8) tri-chloroethylene, 9) halogenic ethanes, 10) Biodegradable oils, 11) explodables in solid or liquid or gas form that may cause flammable conditions or explode in the sewerage system: quantity within 300 milligram / litre (in all).

B : 1) Residuals of filter cakes, 2) asphalt, 3) animal carcasses, 4) ashes, 5) sand, 6) mud, 7) silt, 8) straw, 9) remnants of industrial chiseling, 9) timber residues, 10) metal parts, 11) glass parts, 12) feathers, 13) paper, 14) plastic , 15)all blood, 16) animal body parts, 17) animal bones, 18) thermo Cole, 19) Solids or viscous matter in size and quantities likely not to flow smoothly and in so doing cause problems in the treatment plant, : 500 milligram/ litre (in all).

C : Chemicals such as 1) Cyanide compound up to 1.0 milligrams per litre ; or 2) Phenols and cresols up to 2.0 Phenols and cresols upto 3 milligrams per litre; or 3) Chloro hydrocarbon compounds or organ phosphorus compounds : upto 0.02 milligrams per litre; or 4) Dissolved sulfides in a concentration or upto 0.1 milligrams per litre; or 5) Chlorine : 50.0 milligrams per litre, 7) Fluorides as (-F) in concentrations upto 1.0 milligram per litre, or 8) Detergents known as "hard" detergents in concentrations upto 1 milligram per litre, or detergents known as "soft" detergents in concentrations upto 3 milligrams per litre ;

D : 1) Fats, 2) greasy materials, 3) animal oils, 4) milk, 5) milk products, 6) vegetable oils, 500 milligram / litre ( in all).

E : Liquid wastes including recycled cooling water or brine whose temperature at entry into the sewerage system is greater than 50deg. Celsius and / or containing pH less than 5.0 or greater than 9.0 ;

F : Chemical Oxygen Demand (COD) up to 2,000 milligrams per litre, and substances likely to create strong odors;

G : Rain water, ground water and drainage, garden runoff, pool or courtyard runoff;

H : Solids that cannot pass through an opening of 12square millimeters or total suspended solids in concentrations up to 500 milligrams per litre.

## **SCHEDULE ‘ B ’**

For the purpose of these BYELAWS, save whatever permitted by the Central/State Pollution Control Board to an industrial unit in question, the things mentioned in this Schedule will be termed as industrial Waste.

Substance	Maximum permissible Concentration (Milligrams per Litre)	Substance	Maximum permissible Concentration (Milligrams per Litre)
1. Arsenic	0.50	2. Aluminum	50.00
3. Antimony	5.00	5. Bismuth	5.00
4. Barium	3.00	7. Beryllium	0.50
6. Boron	2.00	9. Cobalt	0.50
8. Cadmium	0.50	11. Copper	2.00
10. Chromium	0.50	13. Cyanide	2.00
12. Chlorides	150.00	15. Iron	40.00
14. Fluorides	10.00	17. Lead	2.00
16. Lithium	0.30	19. Nickel	2.00
18. Manganese	1.00	21. Molybdenum	1.00
20. Mercury	0.05	23. Silver	1.00
22. Selenium	1.00	25. Sulphides	1.00
24. Sulphates	300.00	27. Vanadium	0.50
26. Tin	5.00	29. Titanium	5.00
28. Zinc	3.00	31. Phenol Chlorinated	1.00
30. Phenolic Compounds	3.00	33. Hydrocarbons of petroleum origin	5.00
32. Hydrocarbon Chlorinated	1.00		
34. Solvents of Organic Origin	15.00	35. Pesticides	0.02

## **ANNEXURE "A"**

### **INDUSTRIAL WASTE LICENSE FORMAT**

Schedule A.1A Licensed Industrial Waste Approval Form (Below the Outer limits of Schedule "a" only).

Schedule A.1B Licensed Conditional Industrial Waste Approval Form (above of below the outer limit of Schedule "a" and below the outer limits of Schedule "B" )

Schedule V.1A Licensed Industrial Waste Approval Form (conforming to the conditions of Schedule : "B").

(To be framed)

## **ANNEXURE "B"**

Names of laboratories authorized by the U.L.A.

1.

2.

## **ANNEXURE "C"**

Sample information.

The container of sample shall have the following information.

- a) Name of the trade premises;
- b) Trade waste consent number;
- c) Sampling point ;
- d) Date, start and stop of sampling;
- e) Time, start and stop of sampling;
- f) Duration o the sampling period;
- g) Details of the sampling method;
- h) Preservation method;
- i) Details of any field tests;
- j) Name of the person who carried out the sampling.

Municipal Commissioner  
Navi Mumbai Municipal Corporation