McALLEN
PUBLIC UTILITY

POLICY DOCUMENT

FOR SIZING AND INSTALLATION

OF GREASE TRAPS

DECEMBER 2006

Table of Contents

List of Figures

1.0 GENERAL SPECIFICATIONS FOR GREASE TRAP SIZING

The requirements outlined in these guidelines shall be considered minimum requirements only. It shall be the responsibility of each user to have a grease trap/Pretreatment facility designed; installed and maintained that will produce an effluent in compliance with the requirements of the City of McAllen Code of Ordinances.

1.01 Pretreatment facilities/Grease traps shall meet or exceed the more stringent of specifications and requirements set forth in the City of McAllen Code of Ordinances and other applicable local, state or federal requirements.

1.02 An existing Pretreatment facility/grease trap which is upgraded or replaced shall meet or exceed the specifications set forth in the City of McAllen Code of Ordinances and other applicable Local, State, or Federal requirements.

1.03 Where a user required under this Ordinance to have a Pretreatment facility/grease trap will occupy an existing building, user shall meet or exceed the requirements in the City of McAllen Code of Ordinances and other applicable Local, State, or Federal requirements.

1.04 Pretreatment facilities/Grease traps shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature and capable of withstanding the traffic load where installed.

1.05 Grease traps shall be installed outside the building wherever possible. Where it is impossible to locate a grease trap outside the building, the trap shall be located in a mechanical room or other separate area where no food is stored or processed.

1.06 Pretreatment facilities/Grease traps shall be located so as to be readily and easily accessible for cleaning and inspection of the pretreatment device and shall be equipped with easily removable covers.

Manhole rings and covers shall not less than twenty-four (24) inches in diameter, shall be installed for each compartment to facilitate easy access for cleaning and inspection. The manholes lids shall be placed so that all internal piping is accessible for maintenance and inspection. The cover shall be at or near, but not below the finished grade, unless grease trap design criteria qualifies/calculates for the need of an alternative size (reference page 2-3, Sec. 2.06).

1.07 Grease traps shall have a total liquid capacity of not less than seven hundred and fifty (750) gallons. Grease traps shall be constructed with a minimum of two compartments. Unless grease trap design criteria qualifies/calculates for the need of an alternative size (reference page 2-3, Sec. 2.06).

1.08 Plans for new grease trap/Pretreatment facility or modifications to existing shall be submitted to the Pretreatment Program Supervisor and City of McAllen, prior to the purchase and installation of such devices.

1.09 Building Inspections Department for review, prior to committing and installation of facilities.

A. A description of and number of plumbing fixtures draining to the trap, seating capacity, hours of operation shall be included in the submittal.

B. The Pretreatment Program Supervisor and City of McAllen Building Inspections Department shall be in agreement for approval of the final plans prior to the issuance of any required plumbing or construction permits and subsequent construction.

1.10 Grease trap/Pretreatment facility shall be installed by a licensed plumber. Completed grease Pretreatment facility/trap shall be subject to inspection by the Pretreatment Program Supervisor and the City of McAllen Building Inspections Department prior to connecting to the sanitary sewer.

2.0 GUIDANCE FOR GREASE TRAP SIZING AND DESIGN CRITERIA

Information contained within this Section is based on standard industry practices and guidance found in the 1997 International Plumbing Code (IPC) Commentary and the Uniform Plumbing Code (UPC), Appendix H. Size, type, and location of grease traps shall be in accordance with the manufacturer's instructions, the requirements of City of McAllen Sewer Use Ordinance and Plumbing Ordinance.

2.01 All liquid waste lines in food preparation areas such as dishwashing, garbage disposal and soft drink dispenser drain lines shall discharge through the grease trap, except lines from restroom facilities, cooling unit condensate, and ice maker.

2.02 The minimum size of grease traps shall be determined according to the type of the operating facility, but shall, not have a total liquid capacity of less than seven hundred and fifty (750) gallons. Unless grease trap design criteria qualifies/calculates for the need of an alternative size (reference page 2-3, Sec. 2.06).

2.03 These requirements are applicable to all commercial food service establishments, including those that are undergoing:

A. New construction

B. Interior remodeling to accommodate expansion or operational modifications

C. Changes of ownership/occupancy

D. Facilities which may be experiencing difficulty in achieving compliance with maintenance and/or wastewater discharge limitations

2.04 Sizing methods described herein are provided to determine grease trap/Pretreatment facility sizes that will afford the City's sanitary sewer system a minimum degree of protection against grease and other obstructing materials. Sizing determinations are based on operational data provided by business owners or their contractors. In approving a customer's plumbing or grease trap design, the City does not accept liability for the failure of a system to adequately treat wastewater to achieve effluent quality requirements specified under the sewer use ordinance. It is the responsibility of the generator and/or contractors to insure the appropriate level of treatment necessary for compliance with the City of McAllen Code of Ordinance and other applicable local, state or federal requirements. Minimum acceptable grease trap sizing shall be accomplished as follows:

A. Sizing according to formulas found in Section 2.05 below.

2.05 *Grease Trap Sizing Formulas:* It is the responsibility of the generator and his/her contractors to ensure that the wastewater discharged from their facility is in compliance with the City's discharge limitations. For the purpose of plans review, a general assessment of grease trap design and size will be performed using the following formulas. (These formulas have been demonstrated as

industry standards capable of achieving the City's discharge criteria when systems are maintained in proper working condition.)

A. Method 1: Uniform Plumbing Code, Appendix H

Number of meals Per peak hour (1)	x	total waste flow rate (2)	x	retention time (3)	x	storage = factor (4)	Size Requirement (liquid capacity)

Factors:

1. Number of meals served at peak operating hour (Seating Capacity) x Peak Factor
   a. Where Peak Factor for Fast Food Restaurant is….....1.33
   b. And, Peak Factor for all other food service types is…….……1.00

2. Waste Flow Rate:
   a. With Dishwasher……..…. 6 gallon flow
   b. Without Dishwasher……..… 5 gallon flow
   c. Single Service kitchen……..……..…... 2 gallon flow
   d. Food waste disposer…….…. 1 gallon flow

3. Retention Times
   a. Commercial kitchen waste/dishwasher…….…..…2.5 hours
   b. Single service kitchen/single serving…….……..1.5 hours

4. Storage Factors
   a. Fully equipped commercial kitchen ……..…..8 hr operation…1
   b. ……..…..16 hr operation…2
   c. ……..…..24 hr operation…3
   d. Single Service Kitchen…….…..…1.5

B. Method 2: Five (5) Hour Detention/Peak Flow
1. Gallons of water used per hour of operation
2. A x 0.75 = average "gray water" flow per hour
3. B x 1.9 peak flow factor
4. C x 5 hours detention = volume of trap

Required volume of trap = A x B x C x D

2.06 Alternate Sizing Formula / Proposal: Food service establishments that propose the use of alternate sizing techniques and/or procedures that result in calculations of less than the minimum specification requirements (or are less then the MINIMUM 750 gallon sized requirement, i.e. food service establishments such as sandwich shops) must submit formulas and other bases to support proposed grease trap size/ installation. Submission should also provide documentation of ability to meet effluent quality requirements. This proposal must be signed by a licensed plumbing contractor (master plumber) or professional engineer and must include calculations and justification for non-standard installation, shall be approved on an individual basis.

2.07 Construction/Installation of Grease Traps must meet the following installation conditions:

A. The primary chamber shall contain three-fourths ($^3/_4$) of the total liquid capacity of the trap

B. The dividing wall between each chamber shall completely divide the chambers (shall extend top to bottom)

C. The effluent leaving the grease trap shall not have total oil and grease concentration, as determined by proper laboratory analytical methods, in excess of the discharge limit specified in the City's Local Limits for industrial waste discharges.

D. Grease traps shall be equipped with cleanouts on the outside of the trap in both the influent (prior to the trap) and effluent (after the trap) pipes and clean out on service line at the property line.

E. The influent shall enter each chamber below the static water level in accordance with the specifications outlined in this paragraph. The effluent shall discharge from below the static water level of the chamber in accordance with the specifications outlined in this paragraph.

1. The influent line into all chambers shall terminate no greater than eighteen (24) inches from the bottom of the chamber.
2. The effluent from all chambers shall discharge from the lower twelve (18) inches of the chamber.
3. The influent and effluent inter plumbing shall consist of a T. Inter connection between primary and secondary tanks and additional tanks will consist of a PVC in a 45º degree angle.

A. When several tanks are to be authorized by Pretreatment Department Supervisor to be installed tanks must to be connected in series by placing the tanks next to each other.

4. The static water level shall be maintained throughout the entire trap.

F. All permitting, construction, and inspection activities must be completed in accordance with the City of McAllen code of ordinances. Additionally, the following specifications must be incorporated into grease trap design.

G. The grease trap shall be constructed with a minimum of one baffle.

H. Grease traps are to be installed at a minimum distance of 10 ft. from sinks and dishwashers to allow for adequate cooling of the wastewater. Water temperatures must be less than 120 degrees prior to entering grease trap.

I. All grease bearing waste streams must be routed through an appropriate grease trap, including: three-compartment sinks, pot/pan sinks, soup kettles, hand-washing sinks, dishwashers, mop sinks and floor drains. *Notable Exceptions:* Drains that receive "clear waste" only, such as from ice machines, condensate from coils, may be plumbed to the sanitary system without passing through the grease trap with the condition that the receiving drain is a "hub" type that is a minimum of two inches above the finished floor.

2.08 Generator Responsibilities:

A. It is the responsibility of the customer (waste generator) to insure compliance with the City of McAllen discharge limitations specified in the City's Sewer Ordinance.

B. Hazardous wastes, such as acids, strong cleaners, pesticides, herbicides, paint, solvents, or gasoline shall not be disposed of where they would go through grease or grit traps. Commercial dishwashers are discharged through a grease trap, there for care must be taken in system design. Dishwashers use detergents and elevated water temperatures that will melt grease. If the grease trap is either too small or too close to the commercial dishwasher, grease may pass through the grease trap and into the collection system.

C. Generators are responsible for maintaining grease traps in continuous proper working condition. Further, generators are responsible for inspecting, repairing, replacing, or installing apparatus and equipment as necessary to ensure proper operation and function of grease traps and compliance with discharge limitations at all times.

D. The generator must have grease traps serviced (pumped, cleaned, and inspected) by a City of McAllen permitted waste hauler, at a minimum frequency of every 90 days or more often as necessary, to ensure proper function. Records of maintenance are required to be maintained on site for five (5) years. (90 day maintenance frequency assumes proper sizing and installation consistent with this guidance).

E. Enzymes, solvents, and emulsifiers are not permitted as they will only change the form of grease, allowing it to be carried out of the trap with the wastewater and deposited in the collection system. Biological treatment systems must be pre-approved (registered) by the Pretreatment Program Supervisor. These systems will not alleviate the necessity for inspection and proper maintenance.

3.0 OTHER TYPES OF GREASE TRAPS AND SIZING REQUIREMENTS

Traps are required for oil, grease, sand and other substances harmful or hazardous to the collection system or sewage treatment plant. Design, size, and location of pretreatment devices must be submitted by a licensed plumbing contractor or professional engineer for review and approval.

3.01 *Laundries:* Commercial Laundries, Laundromats, and dry-cleaners shall be equipped with trap in order to reduce the quantity of lint and silt that enter the collection system. The system must be of adequate size and design to allow for cool-down of wastewater so that separation can be more readily achieved. The trap must be installed with a wire basket or similar device, removable for cleaning, that prevents passage into the collection system of solids ½ inch (12.7 mm) or larger in size, string, rags, buttons or other materials detrimental to the public sewerage system.

Sizing must be in accordance with guidance found in the Uniform Plumbing Code (UPC), Appendix H which uses the following formula:

(TGC) x (CPH) x (RT) x (ST) = Size of Lint Grease Trap (gallons)

A. Laundries (continued)

Where:
TGC = Total Gallons per Cycle
CPH = Cycles per hour
RT = Retention time
- 2.5 For Institutional Laundry
- 2.0 For Standard Commercial Laundry
- 1.5 For Light Commercial Laundry

ST = Storage Factor, based on hours of operation;
- 1.0 For 8 hours of operation
- 1.5 For 12 or more hours

3.02 Car Washes

A. Where automobiles are washed (including detail shops utilizing hand-wash practices), separators shall have a minimum capacity of 1000 gallons for the first bay, with an additional 500 gallons of capacity for every other bay.

B. An effluent sample port shall be provided for all traps.

3.03 Automotive Repair Facilities (Garages and Service Stations)

A. Where automobiles are serviced, greased, or repaired or where gasoline is dispensed, oil/water separators shall have a minimum capacity of 500 gallons for the first 1000 square feet of area to be drained, plus 250 gallons for each additional 1000 square feet of area to be drained into the separator.

B. Note: Parking garages in which servicing, repairing, or washing is not conducted, and in which gasoline is not dispensed, shall not require a separator. Areas of commercial garages utilized only for storage of automobiles are not required to be drained through a separator.

Figure 1 Typical Plumbing Layout

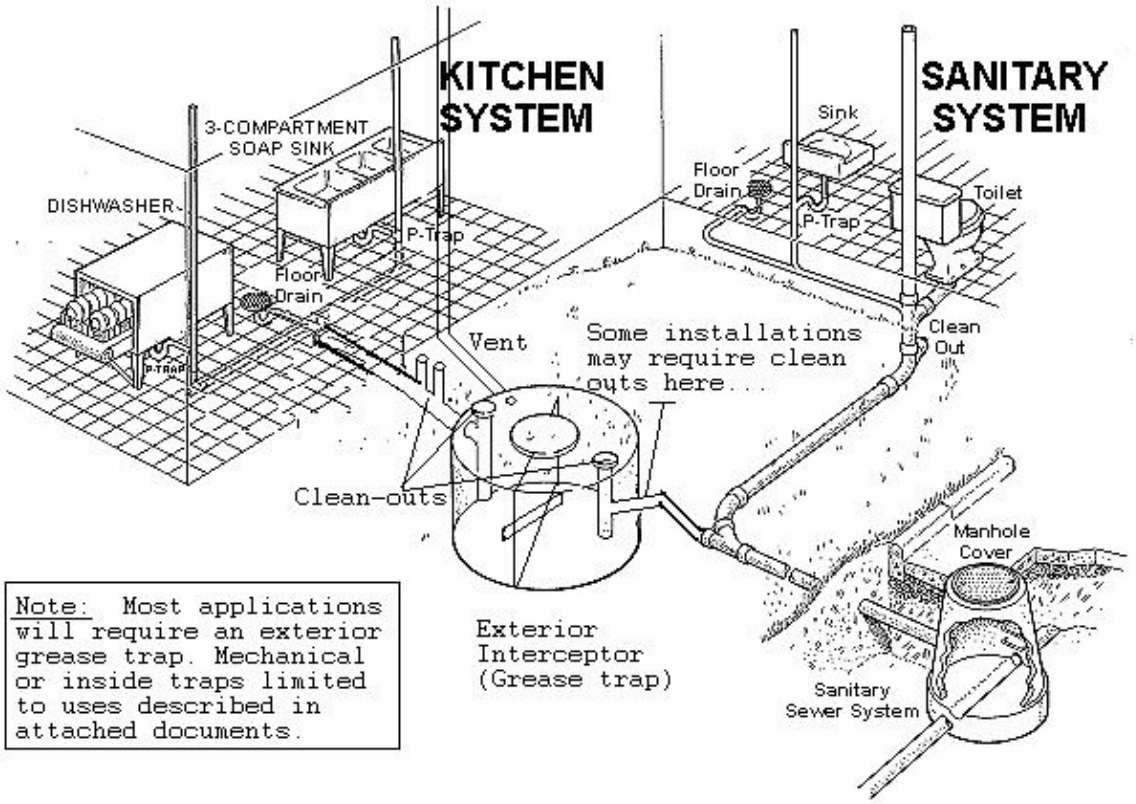
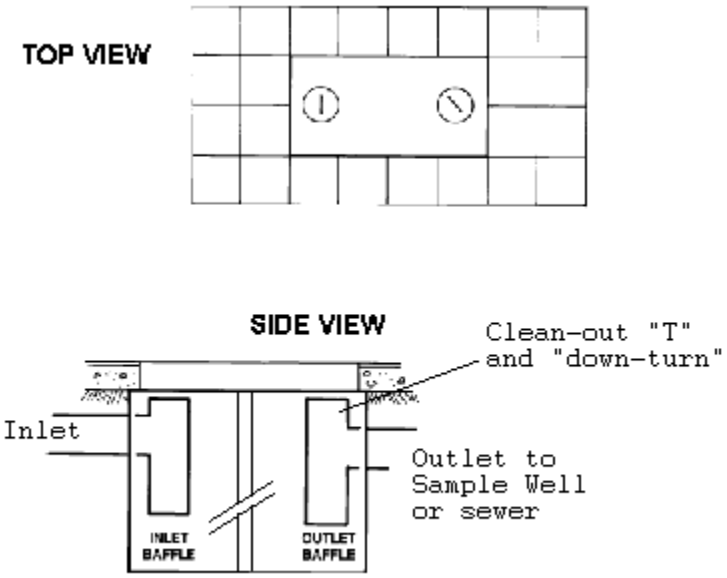


Figure 2 Typical Grease Trap Schematic



4.0 OPERATION AND MAINTENANCE

4.01 Grease traps shall be operated in a safe and secure manner at all times.

4.02 Areas surrounding grease traps shall be maintained to facilitate immediate access to the unit for cleaning and for inspection by the Pretreatment department or authorized agent at all times.

4.03 Grease traps shall be maintained in continuously efficient operation by the owner or operator at his expense and shall produce an effluent in compliance with this or other applicable ordinance.

4.04 A user shall not remove any downpipes or otherwise alter a grease trap in any way which may allow oil and grease, or other objectionable materials, to pass through the device into the sanitary sewer.

4.05 Where the city must clean associated public sewers caused by inappropriate operation or maintenance, inadequate design or installation, or inappropriate alteration of a grease trap. Pretreatment Department may inspect and pin point and require the establishment found to be negligent of the for mentioned, may be required to up size and or repair there grease trap/pretreatment facility

4.06 A User shall not increase the use of water or in any other way attempt to dilute the wastestream in lieu of adequate treatment.

4.07 The addition of hot water or the use of emulsifiers, chemicals, or other agents or devices that may cause oil or grease to pass through a treatment facility or into the sanitary sewer collection system is strictly prohibited.

4.08 Areas surrounding a grease trap or holding tank shall be kept clean and free of grease and odors and other materials at all times.

A. Materials shall not be splashed, spilled, allowed to overflow, or otherwise placed on the area surrounding a grease trap or holding tank.

B. In the event materials are spilled, splashed, overflowed, or otherwise placed on the surrounding area, the generator or owner shall assure the materials are cleaned from the area and properly disposed.

4.09 Grease traps shall be fully evacuated of all contents during cleaning. If the capacity of the trap or holding tank is greater than the capacity of the transport vehicle where full evacuation is not possible in a single load, then the transporter and the generator shall assure the contents are fully evacuated within twenty-four (24) hours.

A. No liquid waste shall be returned to the trap or holding tank after or during cleaning, either from the same or other trap or holding tank.

B. During cleaning, grease residue shall be removed from piping and walls. The piping and walls shall be inspected to assure the integrity of the device is maintained.

4.10 Materials removed from traps shall be utilized by industry, recycled, or disposed at a facility designated by or acceptable to the generator where the owner or operator agrees to receive the wastes and the disposal facility has documentation showing the facility meets all requirements of the State for the proper operation of the disposal facility. All wastes shall be disposed in a suitable manner in accordance with applicable federal, state, and local laws.

4.11 Users required maintaining grease traps or holding tanks shall establish a system of training designed to provide employees with appropriate instruction on the proper use of such facilities.

A. Such training system shall provide employees at all levels of responsibility with a complete understanding of the following:
   1. Importance and methods of good housekeeping practices;
   2. Acceptable waste disposal practices including proper disposal of different types of wastes;
   3. Procedures for preventing prohibited discharges; and
   4. Proper response to and notifications in case of spills or other accidental discharges.

5.0 GREASE TRAP TREATMENT PRODUCTS

5.01 Use of grease trap treatment products, including bacteria, designed to digest the grease, is specifically prohibited without prior written consent of the Director or authorized agent.

A. Acceptance of such products for use may be considered only where a valid on site screening test, showing the product's ability to treat the waste and to produce an effluent in compliance with this Ordinance, has been performed in accordance with the methods outlined by the Director or authorized agent.

B. The Director or authorized agent may revoke permission to use such products where the effluent from the trap or basin in which the product is used fails to meet the requirements of this Ordinance.

5.02 Use of accepted grease trap treatment products shall not relieve the User of minimum cleaning requirements set forth in this Ordinance.

5.03 Use of accepted grease trap treatment products may subject the User to monthly surcharge fees where such usage causes the effluent concentrations to exceed the definition of normal domestic wastewater. Surcharge fees will be levied for biochemical oxygen demand, chemical oxygen demand, and total suspended solids.

6.0 INSPECTION AND CLEANING SCHEDULES

6.01 Inspection, cleaning, and other necessary maintenance of such facilities shall be conducted as often as needed to assure the discharge is in compliance with the provisions of this or other applicable Ordinance, but not less than once per ninety (90) days.

A. The grease trap and the holding tank shall be cleaned as often as necessary, up to and including daily, to assure compliance with this or other applicable Ordinance.

B. In no case shall the accumulated oil or grease be allowed to occupy more than twenty-five percent (25%) total design grease trap capacity.

6.02 The physical condition of the trap shall be inspected by the User each time the facility is cleaned. Repairs, if needed, shall be made prior to further use.

A. Repairs or modifications shall be approved by the City of McAllen Building Inspections Department and the Wastewater Pretreatment Supervisor or authorized agent and shall not be made without the appropriate city permits.

B. Inspection shall be conducted by the City of McAllen Building Inspections Department and or Pretreatment department after repair and prior to refilling or use.

C. Documentation of repairs shall be submitted to the Pretreatment department or authorized agent within thirty (30) days of the date of repair or earlier if specified.

6.03 Grease traps shall produce an effluent in compliance with this Ordinance at the User's pumping schedule. No User shall discharge wastewater containing oil and grease concentration in excess of the discharge limit specified in the City’s Local Limits for industrial waste discharges. Schedules inadequate to produce such effluent shall be upgraded to as often as necessary. Upgraded traps shall meet all requirements set forth in this or other applicable Ordinance.

6.04 A User shall have any trap cleaned when ordered to do so by the Director or authorized agent.

7.0 CLEANING SCHEDULE EXTENSIONS

7.01 The User may apply to the Director or authorized agent for an extension of the required cleaning frequency set forth in this Ordinance. A User who wishes to apply for a cleaning schedule extension shall notify the Director or authorized agent, in writing, of the intent to apply for an extension.

7.02 The Director or authorized agent may grant an extension on a required cleaning frequency on a case-by-case basis where the User has demonstrated, with defensible analytical results, the specific trap will produce an effluent in consistent compliance with this Ordinance if such an extension is granted.

7.03 The notification of intent to apply for an extension shall include:

A. Facility information:
   1. The name and address of the facility;
   2. Name and telephone number of the facility contact;
   3. Normal business hours; and
   4. The type of business.

B. Treatment unit information:
   1. The type of treatment unit and the capacity, in gallons;
   2. A brief description of the treatment unit;
   3. The time(s) of day the greatest hydraulic and organic loadings to the treatment unit normally occur;
   4. The date of the most recent cleaning and inspection of the unit;
   5. A statement of the physical condition of the unit; and
   6. Where applicable, the name of any treatment products used and a copy of the Director or authorized agent approval letter for the use of the product.

C. Other information as may be requested by the Director or authorized agent.

7.04 The Director or authorized agent may grant extensions to the cleaning schedule as follows:

7.05 Extensions granted shall begin on the date the samples for which results were submitted were collected as documented on the chain of custody.

7.06 Where an extension has been granted, the unit shall consistently produce an effluent in compliance with the terms of this or other applicable Ordinance. The Director or authorized agent shall reserve the right to collect and analyze samples of any User's discharge and may revoke, without notice, any extension where the Director or authorized agent believes it is in the best interest of the proper operation of the POTW.

A. Where an extension has been granted and any sample analysis indicates an exceedance of the oil and grease limitation by twenty-five (25%) percent or more, the User shall immediately clean and inspect the trap and shall return to the original cleaning schedule. Where the User has been required to return to

an original cleaning frequency, the User shall be required to submit a new request for extension if desired.

B. Where an extension has been granted and any sample analysis indicates an exceedance of the oil and grease limitation by any magnitude but less than 25%, the User shall immediately clean and inspect the trap and shall increase the established cleaning frequency by at least thirty (30) days.

C. Where an extension has been granted and the City must clean associated public sewer lines and the stoppage is traceable to or known or suspected to be caused by the User's facility, the User shall immediately clean and inspect the trap and shall return to the original cleaning schedule. The User will be required to submit a new request for extension if desired.