Water Authority—Cayman
"Suppliers of the World's Most Popular Drink"
June 2015

best management practices for water resource protection

Grease Interceptors

WHY IS GREASE A PROBLEM?

Commercial and institutional food service facilities generate high concentrations of oil and grease in their wastewater. Wastewater treatment systems, from septic tanks

to aerobic treatment systems to the central sewer system, are designed to treat 'normal-strength, domestic' wastewater. High concentrations of oil and grease can cause problems with any of these treatment systems:

- ☹ Inconvenient, unsanitary backups caused by plugged wastewater lines or fouled pumping equipment
- ☹ Expensive, emergency service calls
- ☹ Smelly, ineffective treatment systems 'suffocated' by oil and grease

PREVENTING THE PROBLEM

The Water Authority requires food service facilities to install and maintain grease interceptors to minimize the amount of oil and grease entering a treatment system.

The following information is provided so that owners and operators of food service facilities will familiarize themselves with the interceptor serving their facility and implement the best management practices to ensure it functions as designed. If further assistance is required to locate or understand your interceptor, contact us.

MAINTENANCE IS A MUST

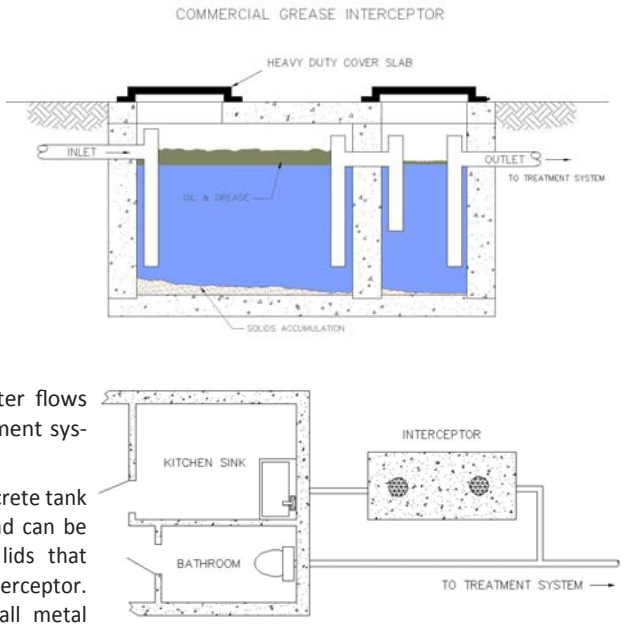
Routine inspection and maintenance is essential to the proper operation of a grease interceptor. As solids collect on the bottom and a grease layer accumulates on the top, the efficiency of the interceptor decreases. Oil and grease will pass through, accumulate in the sewage lines and cause backups, or enter the treatment system and cause it to malfunction.

What is a Grease Interceptor?

A grease interceptor is a specially designed tank that "intercepts", or holds back, grease and solids contained in wastewater from kitchen sinks and dishwashers.

A properly sized and maintained grease interceptor provides the necessary holding time for wastewater to separate into three basic layers: grease floats to the top, solids sink to the bottom, and clearer mid-water flows out to the wastewater treatment system.

An interceptor is usually a concrete tank buried outside the building and can be recognized by the manhole lids that cover the accesses to the interceptor. Some facilities rely on a small metal



Periodically, the interceptor must be completely pumped out (removing the grease mat, liquids, solids and wash down material from the interior walls).

The frequency of cleaning depends on:

- the size of the interceptor
- the amount of grease in the wastewater
- the amount of solids in the wastewater

A general rule of thumb for in-the-ground interceptors is every three months. Under-the- sink models require more frequent cleaning, usually daily.

REMEMBER!
Keep records of pump outs

Best Management Practices
EFFICIENT OPERATION OF GREASE INTERCEPTORS

- ✓ Collect waste oil from fryers in a container to be collected by a recycler (Cayman BioFuels 916-2313)
- ✓ Scrape greasy plates, pots and pans into the trash before washing
- ✓ Use baskets in drains to catch solids; empty into trash
- ✓ If relying on an under-the-sink interceptor, schedule daily cleaning
- ✓ For standard, in-the-ground interceptors, contract with a septic waste hauler for routine inspection and pump-out (see guide on last page)

Frequency of pump-out will depend on tank size, and kitchen practices including the use of a garbage grinder. Solids levels should be measured to determine the required frequency of pump-out. (see guide on next page)

Routine grease interceptor maintenance will minimize foul odors, back-ups and emergency service.

Permitted Septage Waste Haulers:
Entech Ltd.: 947-9253
Industrial Services: 949-7245
Professional Waste Management: 945-0535
Watler & Hislop: 949-4880

PO Box 1104
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The Water Authority was established in 1983 as a statutory body responsible for supplying wholesome and affordable drinking water to the people of the Cayman Islands. The Water Authority is also responsible for the proper treatment of wastewater and for the protection of the fresh groundwater lenses that exist throughout our islands.

Best Management Practices:

solids management: how to measure; when to pump out:

Measuring Solids in Primary Treatment Tank/Section

A primary treatment tank / compartment is one that relies on gravity alone to separate solid from liquid matter. In an onsite treatment system this can be a grease interceptor, a septic tank, or an ATU pre-tank.

To establish a predictable pumping schedule, solids levels should be checked every three months.

It is good practice for the service provider to observe/supervise the pump out service to ensure that:

- the correct tanks/compartments are pumped at the correct frequency and to the proper level,
- the inlet and outlet structures are not damaged during the service, and
- "before and after" levels can be measured to verify established frequency and adequacy of pump-out service.

A "solids stick" is an effective tool for measuring scum and sludge levels in a primary tank. It can easily be made from a 10 foot length of 1/2 inch PVC pipe, two end caps and one 90° elbow: Cut a 6 inch section for the bottom of the "L"; join it to a length of 6 or more feet using a 90° elbow, place end caps on open ends; use blue PVC cement to glue elbow and end caps. Use a waterproof marker to mark 1 foot increments from bottom to top of stick. To use the "solids stick":

- Open access cover over inlet end of pre-tank.
- Refer to Diagram below and record reading at level of dotted line for:

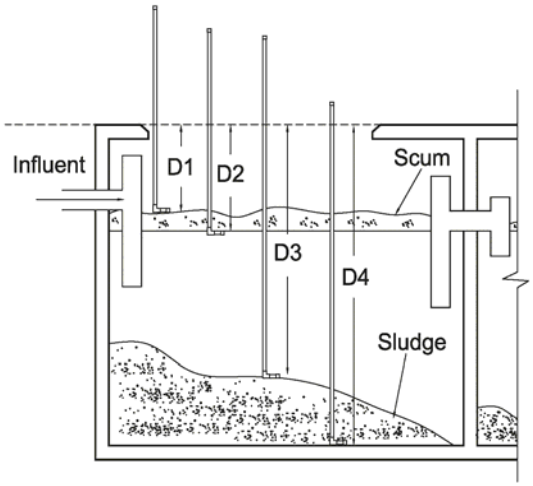
D1 : Lower solids stick, leading with elbow end, until it rests on top of the scum.

D2: Gently push the solids stick through the scum layer, turn it 1/2 a turn and gently pull the stick up until you feel the bottom of the scum layer.

D3: Continue lowering the stick until you feel the top of the sludge layer.

D4: Gently push down, through the sludge, until you feel the bottom of the tank.

- Extract the stick using a disposable rag to wipe the stick as you withdraw it. Sanitary wipes or another rag with bleach can be used to disinfect the stick for storage. Place used rags/wipes in a plastic bag for disposal in a waste bin.
- Calculate Depth of Scum (SC), Depth of Sludge (SL) and Wet Depth (WD) of tank as shown in the text box to the right of the Diagram below.
- Document results on Standard Service Report and indicate whether solids removal is required.



Depth of Scum **(SC)** = D2 – D1 = ___ inches
Depth of Sludge **(SL)** = D4 – D3 = ___ inches
Wet Depth of Tank **(WD)** = D4 – D2 = ___ inches

WHEN TO PUMP

Pump the tank when (SC + SL) is greater than (WD / 3)

For example, if:
depth of scum **(SC) = 8** inches and
depth of sludge **(SL) = 10** inches and
wet depth of tank **(WD) = 48** inches, then
(SC + SL) = 8 + 10 **= 18** & **(WD / 3)** = 48 / 3 **= 16**
Since 18 is greater than 16, it is time to have accumulated solids pumped from both compartments.

Best Management Practices:

Septic Tank and Grease Trap Pump-out

PRECAUTIONS

- The objective of the pump out is to remove as much of the accumulated solids (scum and sludge) as possible. ***It is not necessary – or advisable, in areas with a high water table – to remove all liquid from the tank.***
- The airspace in a septic tank contains toxic gases and/or oxygen deficient air. ***Do not enter the tank*** until fresh air has been continuously blown into the tank for at least ten minutes, a properly calibrated triple gas detector indicates the atmosphere is safe and a safety harness, hoist and co-workers are available and used appropriately to prevent injury or death.
- In the event of a spill, use a squeegee or a muck rake and suction hose for clean up. Apply lime to areas that have been cleaned up.
- The addition of any additives to the septic tank, such as disinfectants, microorganisms, or enzymes are discouraged. Such formulations offer little or no benefit and may even be detrimental to the operation of the system and/or groundwater.

PROCEDURE

- Don personal protective equipment; e.g., safety glasses and gloves.
- Locate and open both access hatches.
- Examine inlet and outlet baffles or tees, noting damage, loose connections and/or plugging. Advise owner of necessary replacement/repairs.
- Take care, throughout the pumping procedure, not to damage internal structures and parts within the tank.
- Lower liquid level below the invert (bottom of the inside of the outlet pipe) of the outlet to prevent grease and scum from being washed into the well.
- Break up the scum layer (floating layer) with a muck rake, then vacuum the scum layer out, continuously moving both the vacuum line and the muck rake during the pumping operation, to break up and guide solids to the vacuum nozzle.
- Loosen the sludge layer (settled layer) with the muck rake and remove as much of solids as possible, starting at the inlet side of each compartment where accumulation is the greatest.
- Secure all access hatches and clean up any drips/spills.

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