Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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Telephone (561) 747-5700 •Fax (561) 747-9929 • www.loxahatcheeriver.org
D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: GOVERNING BOARD
FROM: D. ALBREY ARRINGTON, Ph.D.
DATE: MARCH 14, 2013
SUBJECT: GREASE INTERCEPTOR STANDARDS

Please see the attached document from the U.S. Environmental Protection Agency entitled, "Controlling Fats, Oils, and Grease Discharges from Food Service Establishments" and dated September, 2012 for a general discussion as to why the Loxahatchee River Environmental Control District must work diligently to control the introduction of fats, oils, and grease into our wastewater collection and transmission system and ultimately into our wastewater treatment facility. In short, we are required by federal and state law as well as our NPDES permit (#FL0034649) to do so because EPA concluded that sewer blockages caused by grease accumulations are the #1 cause of sanitary sewer overflows.

In addition to the EPA, the Florida Department of Environmental Protection regulates the discharge of grease to publicly owned sewer systems through their prohibited discharge standards published in Chapters 62-604 and 62-625, Florida Administrative Code, which state that no solid or viscous substances (i.e., fats, oils, grease) that would cause a blockage in any component of the wastewater system may be discharged to publicly owned sewers. The LRD enabling legislation clearly provides authority to regulate sewer systems and require pretreatment of waste within LRD boundaries.

EPA's National Pretreatment Program requires the LRD to establish and enforce local limits as part of our approved pretreatment program. In developing and revising LRD Rule Chapter 31-13 Regulation of Sewer Use, which specifies our pretreatment program, the LRD comprehensively relied on the EPA's 2007 Model Pretreatment Ordinance (http://www.epa.gov/npdes/pubs/pretreatment_model_suo.pdf). In quantifying the local limit for fats, oils, and grease LRD staff used 100 mg/L, which is defined as the oil and grease concentration of "high strength" wastewater by Metcalf & Eddy (2003), and it is the most commonly reported numeric limit for fats, oils, and grease as reported by the EPA (see EPA-833-F-12-003). The EPA Model Pretreatment Ordinance only allows for grease pretreatment at non-residential users, so the LRD may not require grease interceptors at residential units but we are compelled to implement a suitable pretreatment program for all non-residential users, which particularly includes regulating fats, oils, and grease discharges from food service establishments.

Published studies show typical grease loads in commercial kitchen waste are sufficiently high to cause harm to our public sewer system. For example, oil and grease concentrations have been quantified at numerous types of food service establishments, and include the following ranges (all values in mg/L): western restaurant (53-2,100); student canteen (415-1,970); cake bakery (428-991); American fast-food (158-799); bistro (140-410); Chinese restaurant (120-172) (Chen et al. 2000, and Wang et al. 2006).

In addition to publishing LRD Rule 31-13, the LRD also publishes our Construction Standards and Technical Specifications, which specify particular standards to be met within our service area. Included in these standards are design criteria for grease interceptors (see Section 2.07 and SD-5).

LRD Construction Standards and Technical Specifications Section 2.0 Design Criteria

2.07 Grease, Oil and Sand Interceptors

Grease, oil and sand can be a serious problem for any sewer system if not taken care of properly and adequately. When grease is discharged into a gravity collection system, it can cause operation and maintenance problems not only inside those gravity lines, but also with the downstream lift stations and force mains. Additionally, grease inhibits the biological processes at the wastewater treatment plant.

Consideration of frequent and adequate cleaning of interceptors is important and often over looked. Interceptors shall be provided when the resultant discharge from a business contains excessive amounts of grease, oil, lint, sand or other solids and substances that are harmful or hazardous when discharged into wastewater, or in the opinion of the District Engineer the resultant discharge from such an occupancy will be detrimental to the District facilities.

Grease interceptors will be required on all food service establishments where any kind food is prepared on site, or in the opinion of the District Engineer the resultant discharge from such an occupancy will be detrimental to the District facilities. Examples of businesses that will be required to have a grease interceptor are restaurants, delis, bakeries, sandwhich shops, schools, hospitals, assisted and independent living facilities, etc.

Grease interceptors will be sized according to one of the two (2) formulas listed in the 2010 Florida Building Code - Plumbing, Chapter 10 – Traps, Interceptors and Separators, Table 1003.5.1, whichever best applies for the proposed establishment. Use of the sizing formula for restaurants must include four (4) hours added to the time the restaurant is open to the public to account for flow generated during prep time and cleanup. <u>The minimum sized grease interceptor shall be 750 gallons</u>, which will also apply to businesses where the above formulas might not directly apply.

When multiple tanks are required, they must be installed in series. This also applies to pre-existing restaurants (or any facility) that require additional capacity to augment their existing interceptors. Thus, any existing tanks plumbed in parallel, must be modified to be routed in series, where possible.

Interceptors shall not be shared by multiple business locations. Each business location is required to have its own interceptor(s) and its own separate plumbing to the interceptor(s). When the same establishment has multiple discharge points that require installation of interceptors at different locations, such as an institutional facility with a kitchen and a laundry, each use shall be provided with separate plumbing and the required interceptor(s).

All equipment and plumbing fixtures in a food service facility that may introduce fats, oil or grease into the LRD wastewater facilities must be connected through the grease interceptor, including but not limited to:

a. Scullery sinks (two or three compartment)
b. Pots and pan sinks
c. Floor drains in kitchen, walk-in coolers and washing areas (not including public restrooms)
d. Pre wash sinks
e. Dishwashers and other washing machines
f. Automatic hood wash units
g. Indoor garbage can washes

The LRD has determined a 750 gallon (minimum size) grease interceptor is necessary to provide adequate pretreatment at food service establishments. This determination is based on engineering first principles, which state that retention time is the number one factor affecting performance and efficiency of a grease interceptor. This point is supported by numerous technical and peer reviewed publications. For example, Gallimore et al. (2011) found that retention based grease interceptors removed approximately 80% of fats, oils and grease (collectively FOG), while flow based grease traps removed less than 50% of FOG. The authors attributed the improved performance of the gravity interceptor to its longer residence time (Gallimore et al. 2011). Aziz et al. (2011) also found longer residence times resulted in greater FOG removal performance.

The Florida Building Commission has ruled, in a formal legal opinion, that the Schier product does not equal a 750 gallon interceptor:

FLORIDA BUILDING COMMISSION - Legal Report - October 16, 2008

DCA08-DEC-208 by Luke Ismert of Schier Products

QUESTION: *Does the [Florida Building] code permit interceptors for use in public sewer systems that are less than 750 gallons in liquid capacity and conform to PDI G101/ASME A112.14.3 to be installed that have a grease retention capacity that is at least equal to or greater than a 750 pre-cast interceptor and are our products in compliance with the code for this project?*

ANSWER: *No, According to Section 1003.5, the minimum tank volume of grease interceptors shall be 750 gallons (2839 L). The only way a smaller size could be used would by invoking Section 104.11, Alternate material and methods, of the Florida Building Code, Building. Subject to approval of the local authority having jurisdiction, (note: the answer is consistent with the Commission action on DCA04- DEC-072).*

Other studies have found that grease traps (flow-based, or under the counter units) present a higher risk (i.e., of not effectively removing FOG from the wastewater) because of significant maintenance and installation issues (Shaffer et al. 2006). Schaffer et al. (2006) recommended grease traps should be evaluated in the context of their significantly higher risk relative to conventional grease interceptors (i.e., LRD SD-5) because grease interceptors are connected to all the potential grease waste drains, require significantly less maintenance, and have much larger retention times and storage capacity when compared to grease traps.

Finally, it should be noted that the Loxahatchee River District has implemented a Grease Interceptor Exemption whereby a food service establishment deemed unlikely to discharge harmful amounts of fats, oils, and grease to the sanitary sewer are exempted from installing a grease interceptor. Such food service establishments must certify that they do not have certain equipment on-site (e.g., oven, dishwasher, stove top cooking surfaces/griddle, fryers, ranges, etc), and that any and all food served on-site is served on disposable plates or packaging and disposable utensils if necessary.

Citations

Asis, T. N., L. M. Holt, K. M. Keener, J. W. Groninger, and J. J. Ducoste. 2011. Performance of Grease Abatement Devices for Removal of Fat, Oil, and Grease. Journal of Environmental Engineering 137:84-92.

Chen, Xueming, G. Chen, P.L.Yue. 2000. Separation of pollutants from restaurant wastewater by electrocoagulation. Separation and Purification Technology 19:65-76.

Florida Administrative Code, Chapters 62-604 & 62-625.

Gallimore, E., T. N. Aziz, Z. Movahed, and J. Ducoste. 2011. Assessment of Internal and External Grease Interceptors Performance for Removal of Food-Based Fats, Oil, and Grease from Food Service Establishments. Water Environment Research 83:882-892.

Loxahatchee River Environmental Control District. Construction Standards and Technical Specifications Section. April, 2012 Revision.

Shaffer, J., Steinbach, S. Kolk, J. and Hamlett, B. 2006. Fats, Oils, and Grease (FOG) Control Study – Phase II. Environmental Engineering & Contracting, Inc. Orange County Sanitation District. Foutain Valley, CA.

Tchobanoglous, G., Burton, F. L., Stensel, H. D., and Metcalf & Eddy. 2003. *Wastewater engineering: Treatment and reuse* (4th ed.). Boston: McGraw-Hill.

Wang, L.K., Hung, Y.T., Lo, H.H., and Yapijakis, C., Eds. 2006. *Waste Treatment in the Food Processing Industry*. CRC Press. Boca Raton, FL.

Attachments

EPA Office of Water. 2012. Controlling Fats, Oils, and Grease Discharges from Food Service Establishments. EPA-833-F-12-003

Letter dated 2/18/2013 from Rim Bishop, Executive Director, Seacoast Utility Authority.

Letter dated 2/19/2013 from Ted E. Robbins, P.E., Technical Services Administrator, Martin County Utilities.

Letter dated 3/14/2013 from Tim E. Perkins, P.E., Director Water/Wastewater Systems, Fort Pierce Utilities Authority.

Letter dated 3/14/2013 from David D. Peters, Assistant Public Works Director, City of Stuart, FL.

Loxahatchee River Environmental Control District. Construction Standards and Technical Specifications Section. SD-5. April, 2012 Revision.

National Pretreatment Program

(40 CFR 403)

Controlling Fats, Oils, and Grease Discharges from Food Service Establishments

Summary

The National Pretreatment Program implements Clean Water Act requirements to control pollutants that are introduced into POTWs. As part of this program, EPA has promulgated General Pretreatment Regulations that require the establishment of State and local pretreatment programs to control pollutants which pass through or interfere with POTW treatment processes or may contaminate POTW sewage sludge. Meeting these requirements may require elimination of interference caused by the discharge to POTWs of Fats, Oils, and Grease (FOG) from food service establishments (FSE). More specifically, the Pretreatment Program regulations at 40 CFR 403.5(b)(3) prohibit "solid or viscous pollutants in amounts which will cause obstruction" in the POTW and its collection system.

What is the environmental problem with FOG discharges into sewers?

EPA's Report to Congress on combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) identified that "grease from restaurants, homes, and industrial sources are the most common cause (47%) of reported blockages. Grease is problematic because it solidifies, reduces conveyance capacity, and blocks flow." See Impacts and Controls of CSOs and SSOs, EPA-833-R-04 001, August 2004.

Controlling FOG discharges will help POTWs prevent blockages that impact CSOs and SSOs, which cause public health and water quality problems. Controlling FOG discharges from FSEs is an essential element in controlling CSOs and SSOs and ensuring proper operations for many POTWs. The interference incidents identified in CSO/SSO Report to Congress may indicate the need for additional oversight and enforcement of existing regulations and controls. See 71 FR 76660 (21 December 2006).

What is the source of FOG at Food Service Establishments?

FOG wastes are generated at food service establishments (FSEs) as byproducts from food preparation activities. FOG captured on-site is generally classified into two broad categories: yellow grease and grease trap waste. Yellow grease is derived from used cooking oil and waste greases that are separated and collected at the point of use by the food service establishment.

The annual production of collected grease trap waste and uncollected grease entering sewage treatment plants can be significant and ranges from 800 to 17,000 pounds/year per restaurant.

What is the legal authority for POTWs to require FSEs to control FOG discharges?

The National Pretreatment Program already provides the necessary regulatory tools and authority to local pretreatment programs for controlling interference problems. Under the provisions of Part 403.5(c)(1) & (2), a POTW must establish and enforce specific local limits for industrial users to prevent interference with the operation of the municipally-owned treatment works in the following circumstances:

(1) POTWs with approved pretreatment programs;
(2) POTWs that have experienced Interference or Pass-Through and such violation is likely to recur.
See also 46 FR 9406 (28 January 1981).

Consequently, pretreatment oversight programs should include activities designed to identify and control sources of potential interference and, in the event of actual interference, enforcement against the violator.

How do POTWs determine whether they have FOG issues and how to address them?

POTWs should base their FOG programs on knowledge of their systems and a suite of best practices that have proven to reduce FOG discharges and related backups in their collection systems. These efforts are often best implemented through a Capacity, Management, Operations, and Maintenance (CMOM) or an Asset Management program which provides a framework for addressing FOG and other collection system challenges.

The use of Geographic Information System (GIS) mapping to inventory and locate entities that produce FOG constituents, paired with a complaint database that notes when FOG is responsible for blockages, can be a powerful tool in assessing problems and developing solutions. With knowledge of the sources and of

problems areas, a number of steps can then be taken to ensure that FOG does not impact the smooth functioning of the system. A POTW may work towards amending or putting in place a FOG ordinance to be followed in the community, or establish design requirements for grease traps or other structures to prevent FOG from entering the collection system. POTWs should establish an enforcement program to ensure compliance with FOG related policies and ordinances, including an inspection program to ensure that related equipment is working properly. In addition, POTWs may target or prioritize cleaning of the distribution systems based on discharges due to FOG or other root causes. For examples of controls, local limits, and/or pollution prevention measures, see "Where can I get more information?" below).

How can CMOM help control FSE FOG discharges?

EPA expects that blockages from FOG discharges will decrease as POTWs incorporate FOG reduction activities into their Capacity, Management, Operations, and Maintenance (CMOM) program and daily practices. CMOM programs are comprehensive, dynamic, utility specific programs for better managing, operating and maintaining sanitary sewer collection systems, investigating capacity constrained areas of the collection system, and responding to SSOs.

Collection system owners or operators who adopt FOG reduction activities as part of their CMOM program activities are likely to reduce the occurrence of sewer overflows and improve their operations and customer service.

What can FSEs do to control FOG discharges?

Food service establishments can adopt a variety of best management practices or install interceptor/collector devices to control and capture the FOG material before discharge to the POTW collection system.
For example, instead of discharging yellow grease to POTWs, food service establishments often accumulate this material for pick up by consolidation service companies for re-sale or re-use in the manufacture of tallow, animal feed supplements, fuels, or other products.

Additionally, food service establishments can install interceptor/collector devices (e.g., grease traps) in order to accumulate grease on-site and prevent it from entering the POTW collection system.

How should FSEs design and maintain their FOG controls?

Proper design, installation, and maintenance procedures are critical for these devices to control and capture the FOG. For example,

- Interceptor/collector devices must be designed and sized appropriately to allow FOG to cool and separate in a non-turbulent environment.
- FSE must be diligent in having their interceptor/collector devices serviced at regular intervals.

The required maintenance frequency for interceptor/collector devices depends greatly on the amount of FOG a facility generates as well as any best management practices (BMPs) that the establishment implements to reduce the FOG discharged into its sanitary sewer system.

In many cases, an establishment that implements BMPs will realize financial benefit through a reduction in their required grease interceptor and trap maintenance frequency.

What are some POTWs doing today to control FOG discharges from FSEs?

A growing number of control authorities are using their existing authority (e.g., general pretreatment standards in Part 403 or local authority) to establish and enforce more FOG regulatory controls (e.g., numeric pretreatment limits, best management practices including the use of interceptor/collector devices) for food service establishments to reduce interferences with POTW operations (e.g., blockages from fats, oils, and greases discharges, POTW treatment interference from Nocardia filamentous foaming, damage to collection system from hydrogen sulfide generation).

For example, since identifying a 73% non-compliance rate with its grease trap ordinance among restaurants, New York City has instituted a $1,000-per-day fine for FOG violations.

Likewise, more and more POTWs are addressing FOG discharges by imposing mandatory measures of assorted kinds, including inspections, periodic grease pumping, stiff penalties, and even criminal citations for violators, along with ‘strong waste’ monthly surcharges added to restaurant sewer bills. Surcharges are reportedly ranging from $100 to as high as $700 and

more, the fees being deemed necessary to cover the cost of inspections and upgraded infrastructure. Pretreatment programs are developing and using inspection checklists for both food service establishments and POTW pretreatment inspectors to control FOG discharges. Additionally, EPA identified typical numeric local limits controlling oil and grease in the range of 50 mg/L to 450 mg/L with 100 mg/L as the most commonly reported numeric pretreatment limit.

Where can I get more information?

Report to Congress: Impacts and Controls of CSOs and SSOs, EPA-833-R-04 001, August 2004, http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm

Local Limits Development Guidance, EPA-833-R-04-002A, July 2004, and EPA's Pretreatment Web site, http://cfpub.epa.gov/npdes/home.cfm?program_id=3

CMOM information is located in the following document, Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems, EPA-305-B-05-002, January 2005, http://www.epa.gov/npdes/pubs/cmom_guide_for_collection_systems.pdf

Additional information is also available from your state or EPA Region.

EXECUTIVE OFFICE

Seacoast Utility Authority

Mailing Address:
P.O. Box 109602
Palm Beach Gardens,
Florida 33410-9602

February 18, 2013

D. Albrey Arrington, Ph.D.
Executive Director
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, FL 33458-8964

Re: Seacoast Grease Interceptor Program
Dear Albrey:

Responding to your recent inquiry regarding Seacoast's grease interceptor program, please note the following:

1. Seacoast requires the installation of a grease interceptor for commercial and institutional establishments preparing, processing or serving food or drinks containing products which may solidify in the wastewater collection system or otherwise violate Seacoast's Industrial Pretreatment Ordinance. Exceptions may be considered where land use, zoning, or permit requirements restrict such activities to the sale of prepackaged food and drink for consumption off site.

   Where concrete interceptors can feasibly be installed – for example, in new land development projects or at previously developed locations presenting only minor (as defined by Seacoast's Construction Department) installation or operation challenges – Seacoast requires that concrete interceptors be installed. Other designs are considered where site constraints render Seacoast's standard, the concrete interceptor, less than feasible. Within the past ten years or so, Seacoast has approved 17 variances to its concrete grease interceptor standard, 12 of which have been Schier products. For reference purposes, there are presently 474 grease traps within Seacoast's service area.

2. Seacoast is responsible to responsibly operate and maintain its wastewater system in a manner that protects public health and safety and preserves the environment. Doing so requires a multifaceted effort which includes not only rigorous system operation and maintenance, but consistent enforcement of construction standards. In developing Seacoast's standards, including its concrete grease interceptor standard, Seacoast technical staff is more inclined to rely on what it knows, what it has personally witnessed to be effective over its aggregated 150 years of experience in multiple jurisdictions, than any other source of information. Seacoast believes that if its technical staff is to be held accountable for system performance as it should, it is only reasonable that staff's experience and judgment should guide the development and administration of Seacoast's construction standards.

The evidence that Seacoast's concrete grease interceptor standard complies with applicable building codes is fairly compelling by any objective standard. Seacoast provides sewer service within five separate political subdivisions, all of which have building code enforcement authority, and none of which have rejected Seacoast standard concrete grease trap based on building code non-conformance. Thus, to assert that this standard is non-conforming is to assert that all five local governments either do not understand or choose not to enforce prevailing building codes. Such an allegation transcends mere inaccuracy. While I am by no means an authority on building codes, I am confident that our local building officials are.

3. There is no question that ineffectively designed, installed or maintained grease interceptors transfer costs properly borne by the grease generators to the sewer utility's customers. It is hard to imagine a rational argument to the contrary. Such an argument could be expanded to assert that virtually all laws, regulations, codes and requirements created to protect public health, safety, well being and the environment are unnecessary. That ship, so to speak, has long since sailed.

In summary, Seacoast has, and will continue to consider variances to its concrete grease interceptor standard where specific conditions warrant, but it has no plan to adopt any such alternatives as an equal. Over the decades, the properly installed and maintained concrete interceptor has proven functional, reliable and durable, all characteristics that serve Seacoast's customers' interests very well.

I hope you find this letter helpful. Please do not hesitate to contact me if Seacoast can be of further assistance.

Sincerely,

SEACOAST UTILITY AUTHORITY

Rim Bishop, Executive Director

cc Bruce Gregg
Jim Lance
Steve Urich
John Callaghan, P.E.
Jim Nicholson

MARTIN COUNTY
BOARD OF COUNTY COMMISSIONERS

UTILITIES & SOLID WASTE DEPARTMENT
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February 19, 2013

Mr. D. Albrey Arrington, Ph.D.
Executive Director
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, Florida 33458-8964

RE: Grease Interceptor Issues

Dear Mr. Arrington:

My name is Ted E. Robbins and I serve as Technical Services Administrator for the Martin County Utilities & Solid Waste Department (MCU&SW). I am a Florida Registered Professional Engineer and I have been serving in the industry for 35 years. MCU&SW is the department of the Martin County Board of County Commissioners that is responsible for County owned water, sewer and reclaimed water systems that are available to the public in most of unincorporated Martin County.

I offer the following information regarding grease interceptor requirements at MCU&SW. MCU&SW uses F.A.C. 64E-6.013 for grease interceptor sizing. Other details, such as materials and location, are in accordance with MCU&SW standards, "Martin County Utilities and Solid Waste Department, Minimum Design and Construction Standards, latest revision, July 2012." These standards are continually updated on an annual or biannual basis as needs dictate.

The current MCU&SW grease interceptor standard is found at our Standard Section VII – Sewage Pumping Station Design and Construction, Subsection 13, and Standard Design Drawing No. 67, copies attached for reference. These standards require grease, oil and sand interceptors, etc... for the proper handling of wastewater containing excessive amounts of grease and oil... Also, MCU&SW standards require:

1. Tank must be equal to or greater than 750 gallons as required by F.A.C. sizing calculations.
2. This 750 gallon minimum requirement applies to all restaurants and other food service businesses, service stations and vehicle repair garages

that discharge wastewater to the Martin County owned sanitary sewer system.

3. All interception units shall be of the type and capacity and constructed based upon the standards set forth in F.A.C. Chapter 64E-6.013 (minimum 750 gallons/maximum 1250 gallons)...
4. Tanks are required to be constructed of concrete.
5. Tanks are required to be installed outdoors with heavy H-20 wheel load rated access lids.
6. Flow restricted devices are not approved.

These standards are used for all newly constructed restaurants. Existing restaurants that change ownership and/or type of food prepared onsite are required to submit a letter with information necessary to determine grease interceptor sizing. Again, sizing must be in accordance with F.A.C. 64E-6.013.

We have experienced troubles with older restaurants that were grandfathered with under the sink and other alternative grease interceptors allowing damaging amounts of grease into our wastewater collection system. I do not believe it is appropriate to accept the less stringent flow restrictive devices, aka under counter grease traps for grease interception. More frequent monitoring of these units is required, due in part to their smaller grease reservoir. This would result in additional costs to our rate payers to properly monitor these units.

While the standards in F.A.C. 64E-6.013 are written for onsite treatment and disposal sewer systems, it is my opinion that they are correctly used by many utilities in Florida including Martin County and LRECD as the standard of care for effective pretreatment of grease prior to flow into municipal type sanitary sewer systems.

The MCU&SW Department supports the opinions held by Mr. D. Albrey Arrington and the District's Engineer, Mr. George DiCarlo, regarding grease interceptors. Specifically, we support the District's use of F.A.C. 64E.013 for sizing and other details of grease interceptors to protect the District's sanitary sewer collection system.

Very truly yours,

Ted E. Robbins, P.E.
Technical Services Administrator

TER/ hr

Attachments

C: John Polley, Director, Utilities & Solid Waste

usd2013L413

12. Pump run status shall be reported back to central site computer. Pump run times shall be recorded with two (2) second accuracy.

13. RTU Power Status shall be reported back to central site computer.

b) Radio.

Trunked 800 MHZ, fifteen (15) watt adjustable

Manufacturer	Motorola
Model	Per DCR

c) Antenna.

Low profile antenna

Manufacturer	Motorola
Model	FKN4464

The Contractor shall supply all necessary components for a fully functional RTU. Any appurtenance not specifically detailed above, but required for proper operation shall be provided.

The Contractor shall be responsible for all installation and start-up and testing of the RTU, including mounting of the panel, wiring, supports, etc.

13. Grease Traps/Lint Traps

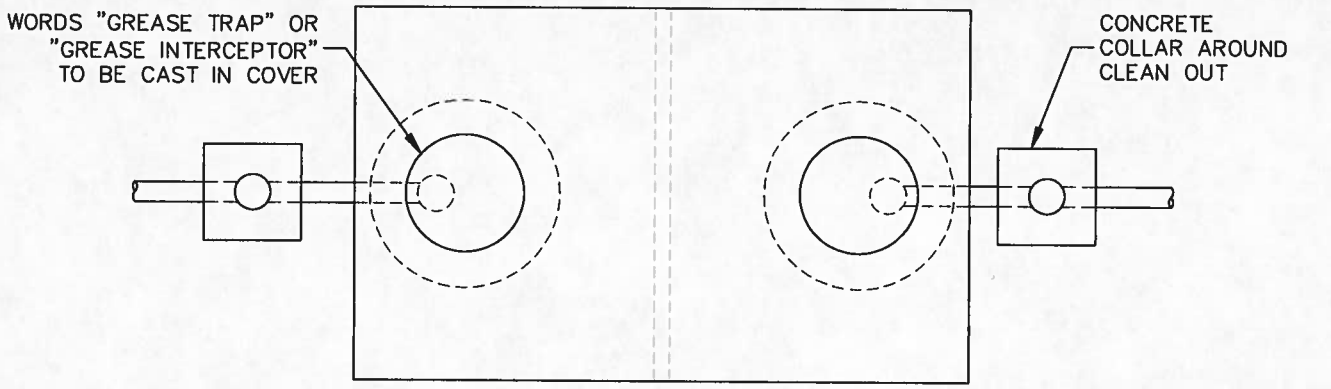
a. Grease Traps. Restaurants and other food service businesses, service stations and vehicle repair garages.

1. Grease, oil, and sand interceptors shall be provided on drains leading to sewer pipes when, in the opinion of the Director, they are necessary for the proper handling of wastewater containing excessive amounts of grease and oil, or sand; except that such interceptors shall not be required for residential users. All interception units shall be of type and capacity, and constructed based upon the standards set forth in FAC Chapter 64E-6.013 (minimum 750 gallons/maximum 1250 gallons), as well as, the latest version of the Martin County Utilities Minimum Design and Construction Standards.

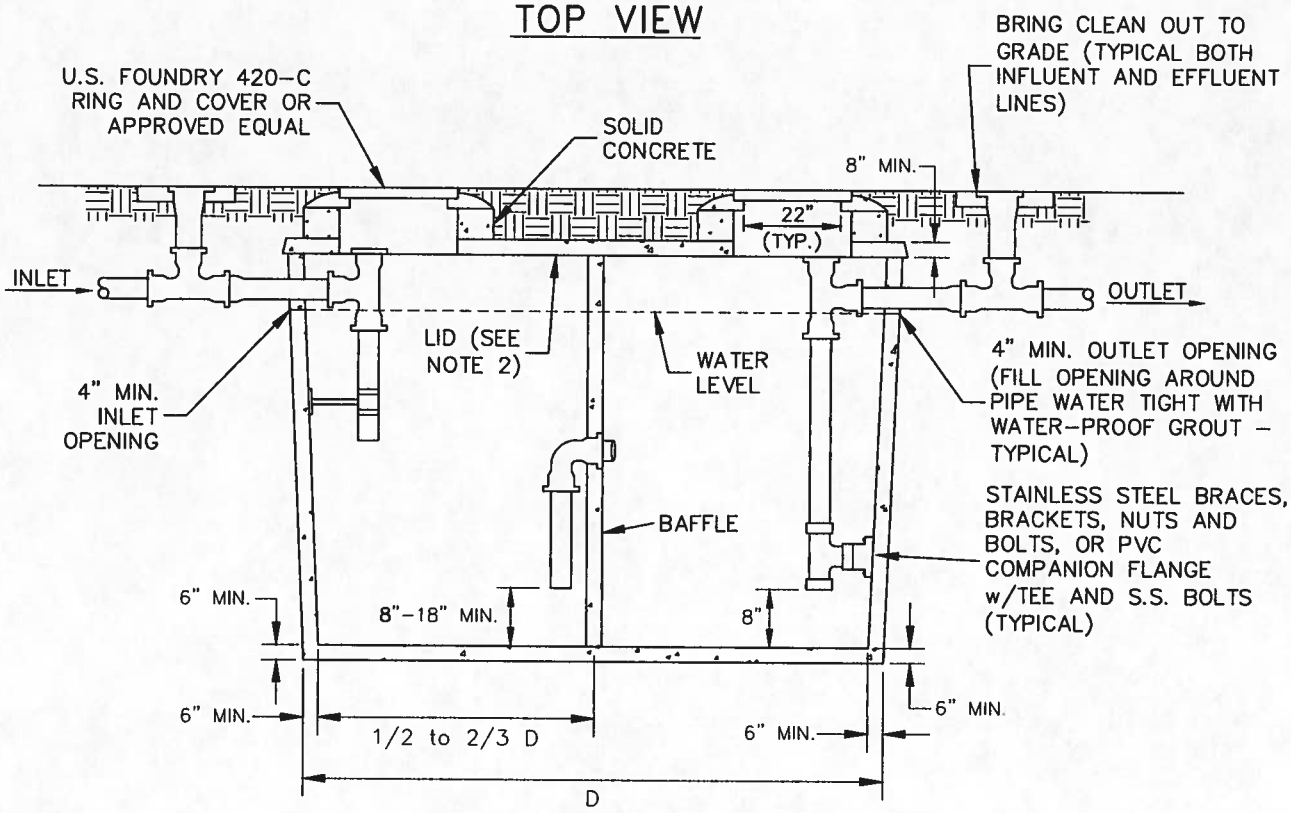
b. Lint Traps. Lint screens are required on drains leading to sewer pipes from commercial laundries. Filtering apparatus should be sized to handle flow rate of laundry discharge through a minimum of three (3) screens two-¼-inch mesh size and one-1/8-mesh size. Metal fabric must be used for filtering. No toxic metal fabrics will be allowed.

c. Existing restaurants that change ownership and/or type of food prepared onsite will be required to submit a letter stating the number of seats in the restaurant and/or meals served per day for use in sizing the Grease Interceptor, based on FAC 64E-6.013 requirements.

d. All newly constructed restaurants will be required to submit a Grease Trap Questionnaire indicating the size of the Grease Interceptor required to support the number of seats and/or meals served per day, signed and sealed by a Professional Engineer, and a diagram indicating the proposed location of the Grease Interceptor. See Standard Detail Drawing No. 67 which indicates generation rates for ordinary restaurants at 16 gpd per seat.



TOP VIEW



SECTION

NOTES:

1. GREASE TRAPS (SEPTIC TANKS) SHALL BE MANUFACTURED BY FLORIDA SEPTIC INC., SEBRING SEPTIC, AVERETT SEPTIC, OR APPROVED EQUAL. STATEMENT: "THIS CONCRETE STRUCTURE MEETS OR EXCEEDS ALL THE REQUIREMENTS FOR GREASE INTERCEPTORS/SEPTIC TANKS AS REQUIRED BY THE FLORIDA ADMINISTRATIVE CODE (F.A.C.), CHAPTERS 64E-6.013". TANK MUST BE EQUAL TO OR GREATER THAN 750 GALLONS AS REQUIRED BY THE F.A.C.. SIZING CALCULATIONS, (3 COPIES MINIMUM), SHALL THEN BE SIGNED AND SEALED BY THE ENGINEER-OF-RECORD AND FORWARDED TO THE DEPARTMENT FOR APPROVAL. NOTE THAT GENERATION RATES FOR ORDINARY RESTAURANTS SHALL BE 16 GPD PER SEAT PER MARTIN COUNTY UTILITY DEPARTMENTAL POLICY.
2. LID TYPES:
   A) 4" REGULAR LID
   B) 8" TRAFFIC BEARING LID
3. ALL INTERNAL COMPONENTS WILL BE CONSTRUCTED BY GREASE TRAP INSTALLER.
4. TANK INSPECTIONS WILL OCCUR WITH TANK ABOVE GROUND.
5. BAFFLE SHALL BE INSTALLED 1/2 (ONE HALF) TO 2/3 (TWO THIRDS) 'D'.
6. MEETS H-20 LOAD REQUIREMENTS.

715 South 25th Street (34947)
PO Box 3191 (34948)

Phone: 772.466.1600, Ext. 3475
Fax: 772.468.2411

Director of Water/Wastewater Systems
"Committed to Quality"

March 14, 2013

D. Albrey Arrington Ph.D.
Executive Director
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, Florida 33458-8964

Dear Mr. Arrington:

Re: Grease Interceptor Issues

In addition to being the Water Wastewater Director for Fort Pierce Utilities Authority (FPUA), I am a Florida Registered Professional Engineer with 33 years of experience in the water wastewater industry, both as consulting engineer and as a utility engineer and manager. FPUA is an Authority chartered by the City of Ft. Pierce that is responsible for water and wastewater systems in the City of Ft. Pierce and portions of St. Lucie County.

FPUA has not had any direct contact with Mr. Schneeweiss that I am aware of. However, FPUA standards require installation of in ground grease interceptors on all new food service facilities and renovated facilities where new or additional equipment is installed by existing customers, except for Class II Food Service facilities which may install either an interceptor or an FPUA approved Grease Trap. FPUA does not accept in ground units that do not meet the F.A.C. 64E-013 standards such as the Schier products marketed by Mr. Schneeweiss. The volumes of the units and configuration are not adequate to provide the level of protection required for our wastewater collection systems.

I have found in my experience that utilization of in ground grease interceptors is the preferred approach to provide the best level of protection to collection systems and minimize utility maintenance costs and sewage blockages that can impact other customers. I concur with the conclusion that allowing less stringent grease pre-treatment requirements such as under the counter grease traps would result in transferring cost from food establishments to general rate payers.

FPUA has experienced problems with older restaurants that have under the sink or other alternative grease interceptors allowing excessive amounts of grease to enter the wastewater collection system.

It is true that the F.A.C. 64E-013 standards are drafted for use in on-site treatment and disposal sewer systems. However, in practice their use by numerous utilities in Florida has resulted in effective pretreatment for removal of grease prior to discharge into wastewater collection systems.

Sincerely,

Timothy E. Perkins, P.E., Director
Water/Wastewater Systems

pc: William G. Thiess, P.E. Utilities Director

Stuart

City of Stuart

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Public Works Department
David D. Peters.
Assistant Public Works Director

dpeters@ci.stuart.fl.us

March 14, 2013

Mr. D. Albrey Arrington, Ph.D.
Executive Director
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, Florida 33458-8964

Re: Grease Interceptors

Dear Mr. Arrington:

The City of Stuart mandates all grease interceptors be sized in accordance with 64E-6.013 of the Florida Administrative Code.

In addition, Chapter 42 of the City's Code of Ordinances states,

Sec. 42-396. - Fat, oil, and grease trap/oil and sand, and lint separator/interceptor.

Fat, oil, and grease trap/oil and sand, lint separator/interceptor requirements.

(1) *Fat, oil and grease (F.O.G.) interceptors required.* Users who operate restaurants, cafes, lunch counters, take-outs, cafeterias, bars, clubs, or hotel, hospital, factory or school kitchens or other establishments that serve or prepare food where F.O.G. may be introduced to the sewer system shall have a F.O.G. interceptor. Take-out food establishments or other establishments that prepare food but do not cook in oil or grease and who serve food only in disposable containers may utilize alternative interceptors as approved by the director, provided their discharges will not violate any discharge prohibitions of this article. F.O.G. interceptors may also be required in non-cooking or cold dairy and frozen foodstuff establishments when they are deemed necessary by the director.

(2) *Oil and sand interceptors required.* Users who operate automatic and coin-operated laundries, car washes, filling stations, commercial garages or similar businesses having any type of washing facilities or grease racks and any other users producing grit, sand, oils or other materials which may have the potential of causing partial or complete obstruction of the building sewer or other areas in the sewer system shall install interceptors approved by the director.

(3) *Lint traps required.* Users who operate automatic and coin-operated laundries having any type of washing facilities which may have the potential of causing partial or complete

obstruction of the building sewer or other areas in the sewer system shall install a lint trap approved by the director.

(4) *Location of interceptors.* All interceptors shall be located outside the building in such a manner that personnel from the city can inspect the interceptors at any time.

(5) *Size of interceptors.* All interceptors shall be sized to ensure that the city's sewer system is protected from excessive F.O.G., sand and oil which may cause clogging or damage and that the user is capable of meeting all discharge requirements. F.O.G. interceptors shall be based on chapter 10 of the Florida Building Code, as amended.

(6) *Sampling port.* A sampling port shall be installed in an approved location to allow sampling by the utility and the user. The sample port shall be located between the interceptor and the discharge point to the sewer system.

(7) *Access manholes.* An access manhole must have a minimum diameter of 24 inches and shall be provided over each chamber and sanitary tee. The access manholes shall extend at least to the finished grade and be designed and maintained to prevent water inflow or infiltration. The manholes shall have readily removable covers to facilitate inspection and cleaning.

(8) *Plans required.* The following must be submitted to the city for review and approval prior to installation of an interceptor.

a. Site plans showing the location of the interceptor, lines, clean out or manhole and sample port;
b. Details of the interceptor, lines, clean out or manhole and sample port; and
c. Formula and calculation used to determine the interceptor capacity. Must be signed and sealed by a civil engineer.

Note: No nongrease-laden sources are allowed to be connected to sewer lines intended for grease, oil and sand separators.

(9) *Existing interceptors.* All interceptors currently in use or in existence at the time of this article will be considered sized sufficiently provided they meet all discharge requirements as stated in this article. All new interceptors or interceptors to replace or upgrade existing interceptors will be required to meet all criteria stated in this division.

(10) *Inspections.* When upon inspection the interceptor is found to have six inches or more of solids in the bottom of the interceptor (using a sludge judge) or a grease cap of three inches or more, or the establishment exceeds discharge compliance levels, the director can require a grease pump out. Upon completion of an on-site inspection or analytical results of sampling indicate a violation of this article, the director may issue a "notice of violation" to the user or representative to document any discrepancies, noncompliance, special instructions or other guidance identified during the on-site inspection.

March 14, 2013
Mr. Albrey Arrington.
Subject: Grease Interceptors

(11) *Maintenance.*

a. The user of the premises or business where such interceptor is located shall maintain all records pertaining to the maintenance of an interceptor for a period of not less than three years and available to the city upon request.

b. Every F.O.G. interceptor shall be cleaned whenever the interceptor has six inches or more of solids on the bottom or a grease cap of three inches or more.

(12) *Alternative treatments.* The use of any free-enzyme, chemical, or other products designed to emulsify, liquefy or further render grease soluble for the purpose of clearing drains or circumventing the design of the interceptor is prohibited. All products claiming biological activity must be approved by the director. Approval for this or any other treatment does not relieve the user of properly maintaining the interceptor as to prevent discharge violations to occur.

Failure to comply with this section shall subject the user to appropriate enforcement, fines, and procedures as set forth in this article. Additionally, if any person fails to comply with this section and said failure results in damage to the city's system, the city shall be entitled to recover the cost of repair of the system from said person and any fines or penalties assessed against the city as a result of such failure.

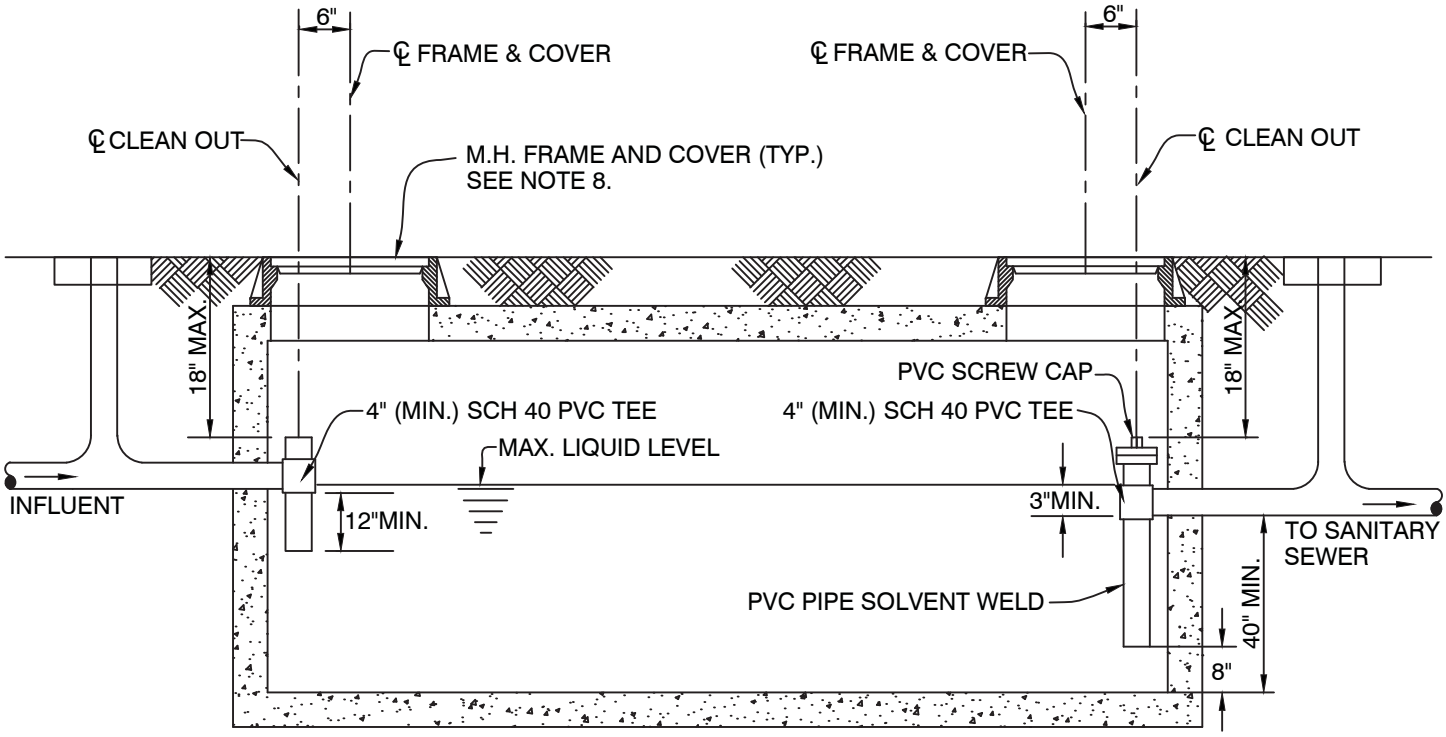
In addition, sheet number 47 in the City's Water and Sewer Standard Specifications and Details depicts the typical detail that must be submitted for review and approval, signed and sealed by the engineer of record.

The City of Stuart supports the opinions held by Mr. D. Albrey Arrington and the District Engineer, Mr. George DiCarlo, regarding grease interceptors. Specifically we support the District's us of F.A.C. 64E-6.013 for sizing and other details of grease interceptors to protect the District's sanitary sewer collection system.

Sincerely,

David D. Peters
City of Stuart

cc: file



NOTES:

1. EFFECTIVE SIZE OF INTERCEPTOR 750 GALS MIN. AND SHALL BE MADE OF CONCRETE.

2. TANK TO BE DESIGNED TO RESIST FLOTATION WHEN EMPTY.

3. TWO-WAY CLEAN OUTS WILL BE INSTALLED IMMEDIATELY UPSTREAM AND DOWNSTREAM OF ALL GREASE INTERCEPTORS. IF INSTALLED IN PAVED AREAS, A PROTECTIVE STANDARD CLEAN OUT COVER WILL BE INSTALLED PER SD-10.

4. TANK(S) SIZING SHALL FOLLOW 2010 FL. BLDG CODE TABLE 1003.5.1. TANK CONSTRUCTION SHALL BE IN ACCORDANCE WITH CHAPTER 64E-6, OF THE FLORIDA ADMINISTRATIVE CODE.

5. ALL MATERIALS SHALL BE NEW AND CODE APPROVED.

6. ALL MANHOLE COVERS USED SHALL BE MARKED WITH: "GREASE TRAP" LETTERING.

7. TANKS TO BE IN SERIES WHERE MULTIPLE UNITS ARE REQUIRED.

8. FOR TANKS UP TO 1,250 GALLONS, USE 24" STANDARD M.H. FRAME AND COVER, U.S. FOUNDRY. FOR LARGER TANKS, USE DOUBLE RING AND COVER TYPE, #230-AB-M, U.S. FOUNDRY.

LOXAHATCHEE RIVER DISTRICT

N.T.S.	GREASE INTERCEPTOR DETAIL	SD-5
REVISION: APRIL, 2012		