SepSensor
Grease Interceptor Remote Monitoring

Fats, Oil & Grease…

The Use of Remote Monitoring Technology as a Tool to Optimize Management of Grease Interceptors

Presented by

SepSensor Inc

Marlborough, MA

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Fats, Oil & Grease (FOG)

The Problem:

All Food Service Establishments (FSE's) generate grease and sludge. Some more than others.
Small sandwich shops 150 meals/day to the larger multi-course restaurants serving 1000+ meals/day.

FSE's have a primary focus of building sales and satisfying customers.

In-ground grease interceptors are out-of-sight and out-of-mind.

FSE's will often times rely upon pumpers to "manage" their grease interceptors.

When a pump out or service is done, there is zero oversight or ability to quantify the results of the service.

The Challenge for the FSE:

Did my my service provider do an adequate job?

Am I getting full value for the service I am being charged for?

How can I verify the service was performed properly?

Is the service being performed being done at an optimum frequency?

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Variables That Impact Ability to Properly Manage FOG

Menu	# Meals served
Daily waste flow	Business seasonality
Dishwasher	Garbage grinder
Size of grease interceptor	Multi Compartment & Baffles
Biological agents	Floor degreasers
Floor drains secured	BMP’s
Handling of yellow grease	Pumper performance

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Without Monitoring, the Only Way to Measure <u>both</u> the Grease Layer <u>and</u> the Bottom Solids is to use…

The Old Fashioned Sludge Judge

Grease Floats to the Top

Solids Settle on Tank Bottom

Nasty & Time Consuming

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Visual Inspections Can be Deceiving

Looks okay… however,
there's 4" oil and 6" sludge.
Equals 10"/48" = 21%
Will need to be pumped soon.

Five Days After a Pump Out:
1" Grease is in the normal range…
However,
the 11" Sludge is more in line with a poor pump out

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Assumptions on Daily Practices can be Misleading

What can't be seen…
the 12" of Sludge.

How is Yellow Grease being handled
when the Recycling Bin is Full?

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Without Monitoring
There's Another Possibility

After 90 Days…
Almost No Grease, Pumper on his way!

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Benefits of the SepSensor Monitoring Technology

Know when the 25% design capacity will occur

- Seasonality
- Change in menu or hours of operation
- Change in BMP's

Schedule against 25%, or as determined by the municipal regulator.

BMP analysis; compare all sites & make corrections.

Verify pump outs

Eliminate backups & overflows

Retain data (day/time/thoroughness)

Proactive pumper management; call backs where needed

Fats, oil, and grease remain in the tank for proper removal and disposal.

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How SepSensor Monitoring Works?

The Monitor: Three separate patented sensor sections, each with 11 independent elements.
- Grease sensor
- Sludge sensor
- Flood sensor

An RTU, cell phone, battery pack, and antenna

Readings taken every 15 minutes to “observe” tank activity.

A one minute call each night to the Central Monitoring Facility to upload the data from the past 24 hours

The raw data gets analyzed and is posted to the SepSensor website.

Data access is via a user name and password

Pump out activities are “day/time stamped.”

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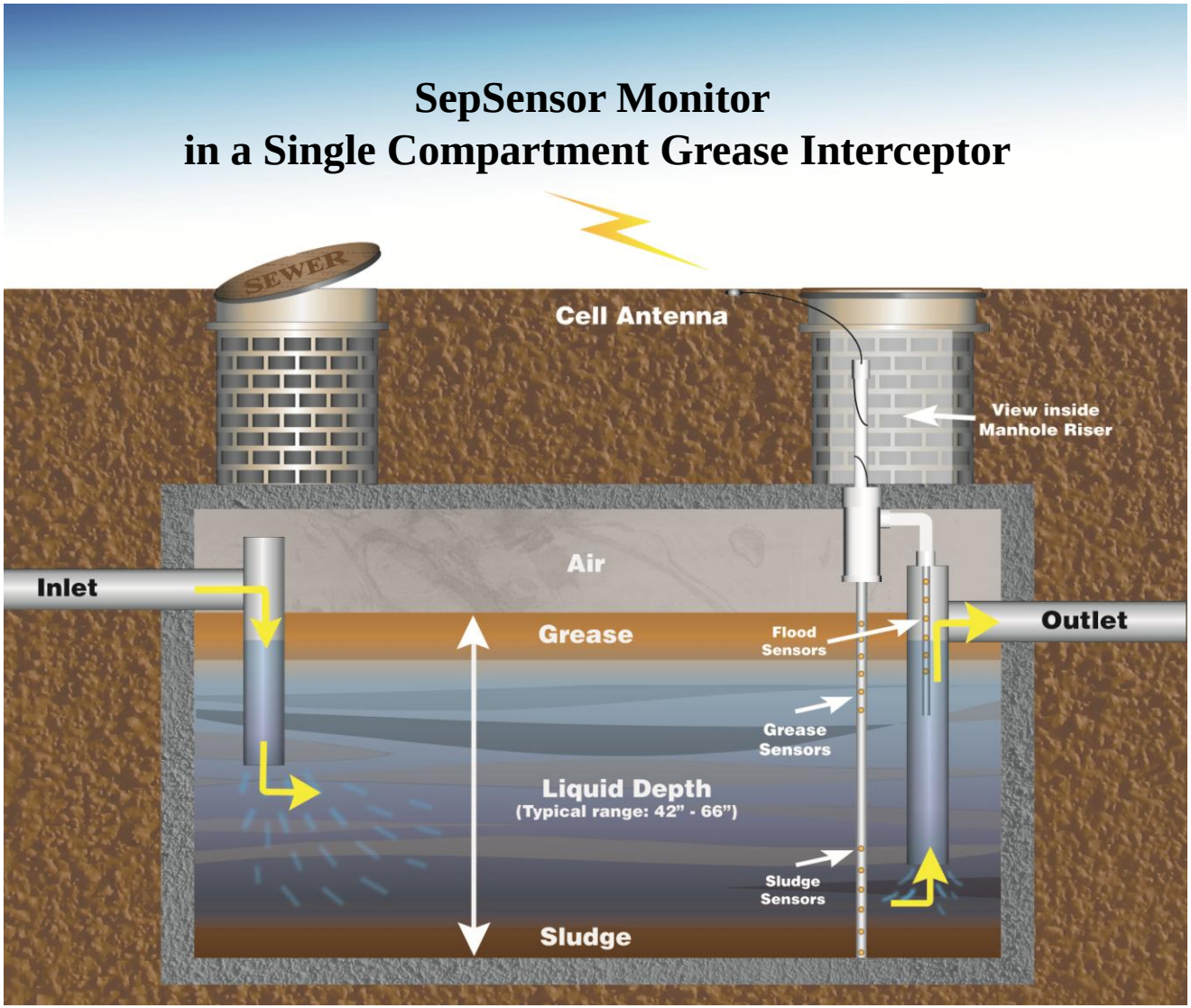

Monitoring Equates to a Sludge Judge Being Done Every 15 Minutes!

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Monitor about to be Installed

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Typical Installations

Outlet Manhole Installation

Flood Sensor Placed in tee to Detect High Water

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SepSensor Monitoring Data

Grease level: Depth in inches, % capacity relative to liquid height

Sludge level: Depth in inches, % capacity relative to liquid height

Combined level: Depth in inches, % capacity relative to liquid height

Using the **25% rule or other measure:**

Arrange for a timely pump out
Proactively manage pumper performance
Proactively manage BMP's

Average tank temperature: Too hot can hinder separation

Verification:
Meet the regulation
Eliminates over paying for a partial pump out
Increase on-going efficiency of the grease interceptor

Historical record keeping: Pump out data retained for as long as required

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Example e-mail Notice

12/29/2009

Director of Facilities:

Site: #3371-Southington
Alerts: There is a **current alert** for: pump out due within a week, currently at 25% sludge/grease capacity.

Site: #3990 Manchester
Alerts: There are **current alert** for: pump out due within two weeks, 20%...all grease.

Site: #4934 Taunton
Alerts: There are **current alert** for: pump out due within two weeks, 21%.

Data: Available on line – click on this link: **Boston** Note - With multiple sites, the ***Chainwide Summary Page*** directs you to each site by clicking on the site link in the first cell. Navigate to detail charts and data for each prior month and year by pressing the appropriate tab at the bottom of the ***Site Summary Page***. To return to the Chainwide Summary Page from each site, click on the site title link in the summary tab.

Your user name is "clemens" and your password is "rocket". Note they are case sensitive.

Thank you for using ***SepSensor Grease Interceptor Remote Monitoring***

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Example of Customer Summary Page

Last update: 12/29/2009

Customer Summary Page

Site	Location	Updated	Proj. Next Pumpout	Last Pumpout	Current % sludge	Current % grease	Total % grease and sludge	Tank Size (Gal)	limit Total % grease and sludge	Pumper
#5049	Worcester MA	12/28/2009	2/28/10 re: grease limit	10/15/2009	0%	6%	6%	3,000	6" grease and 8" sludge or 25%	BigCo
#3050	Newington, CT	12/28/2009	2/28/2010	12/7/2009	0%	13%	13%	1,250	25%	BigCo
#3635	Attleboro,MA	12/29/2009	1/30/2010	4/28/2009	0%	19%	19%	2,500	25%	BigCo
#4503	Wrentham, MA	12/28/2009	2/10/2010	9/21/2009	3%	12%	16%	4,000	25%	BigCo
#3952	E. Greenwich RI	12/28/2009	1/25/10 per WSA	12/21/2009	0%	0%	0%	1,500	20%	BigCo
#3952	E. Greenwich RI	12/28/2009	1/25/10 per WSA	12/21/2009	0%	2%	2%	1,500	20%	BigCo
#4934	Taunton MA	12/29/2009	1/15/2010	9/23/2009	3%	18%	21%	3,000	25%	BigCo
#4579 (Inlet)	Framingham MA	12/28/2009	3/31/2009	4/29/2009	0%	6%	6%	5000 2-compartment	25%	BigCo
#4579 (Outlet)	Framingham MA	12/28/2009	3/31/2010	11/13/2009	0%	10%	10%	5000 2-compartment	25%	BigCo
#3990	Manchester CT	12/28/2009	1/8/2010	10/23/09 Partial pump	0%	20%	20%	1,500	25%	BigCo
#4675 (Tank #2)	Windsor Locks CT	12/28/2009	5/31/2010	11/24/2009	0%	7%	7%	1,000	25%	Local Pumper
#4675 (Tank #1)	Windsor Locks CT	12/28/2009	1/31/2010	11/24/2009	7%	5%	12%	1,000	25% i	Local Pumper
#4455 (Tank #2)	Bloomfield CT	12/28/2009	5/31/2010	11/27/2009	0%	2%	2%	1,000	25%	Local Pumper
#4455 (Tank #1)	Bloomfield CT	12/28/2009	12/12/2009	11/27/2009	19%	14%	33%	1,000	25%	Local Pumper
#2842 (Tank #2)	Cromwell CT 06416	12/29/2009	1/19/2010	11/20/2009	0%	16%	16%	1,000	25%	BigCo
#2842 (Tank #1)	Cromwell CT	12/28/2009	1/31/2010	11/20/2009	0%	10%	10%	1,000	25% i	BigCo
#3371	Southington CT	12/28/2009	12/31/2009	10/30/2009	8%	17%	25%	2,000	25%	BigCo
#4628	Johnston RI	12/28/2009	3/31/2010	12/23/2009	0%	0%	0%	5,000	25%	BigCo
#4186 (Inlet)	Westboro MA	12/29/2009	5/16/2010	12/16/2009	0%	0%	0%	10,000	25% in conjunction with Effluent	BigCo
#4186 (Outlet)	Westboro MA	12/29/2009	5/5/2010	12/16/2009	0%	2%	2%	10,000	25% in conjunction with inlet	BigCo
#4431	Lisbon CT	12/28/2009	1/25/2010	12/21/2009	0%	0%	0%	2,000	90 Days, variance with data	BigCo

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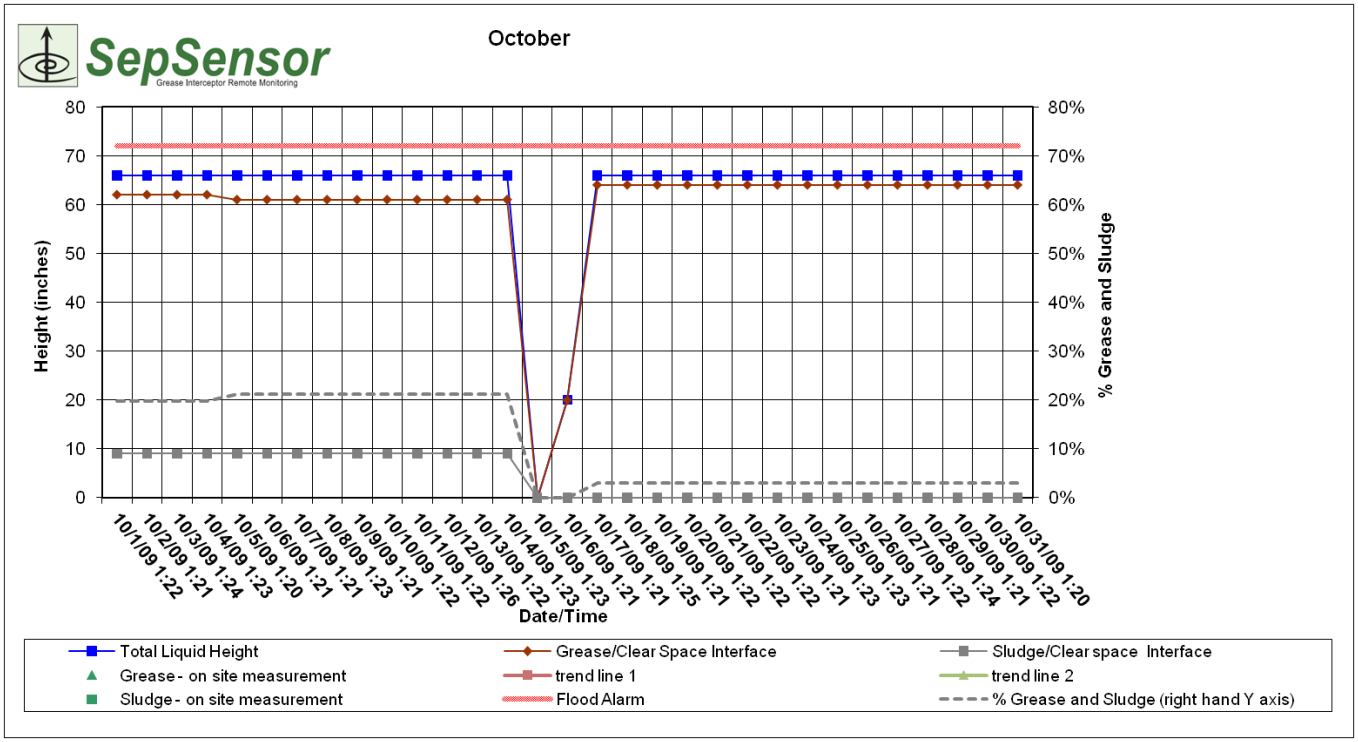
Example Monthly View



date/time	**Sludge**/Clear space Interface	**Grease**/Clear Space Interface	Total Liquid Height	water temp	air temp	voltage	Sludge - on site measurement	Grease - on site measurement	% Grease and Sludge (right hand Y axis)	Flood Alarm	Days since pumpout	Notes
10/11/09 1:22	9	61	66	62	67	10			21%	72	99	
10/12/09 1:26	9	61	66	61	68	10			21%	72	100	
10/13/09 1:22	9	61	66	62	64	11			21%	72	101	
10/14/09 1:23	**9**	**61**	**66**	61	64	11			**21%**	72	102	
10/15/09 1:23	0	0	0	53	70	11			#DIV/0!	72	0	**Pump out @ 8:00**
10/16/09 1:21	0	20	20	49	67	11			0%	72	1	
10/17/09 1:21	0	**64**	66	60	75	11			**3%**	72	2	
10/18/09 1:25	0	64	66	59	70	11			3%	72	3	

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Questions?

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