

Industrial Fluid Management, Inc.

The Cinci Story
Solving Their Grease Dilemma

Elite Lift Station Crew

- 153 Lift Stations ranging in size
- 8 Employees assigned
- 2 Electricians, 6 Laborers
- Headed by Richard Smith, 30 Years
- All crew members on call 24/7
- Since conception have helped MSD reduce number of bypasses

IFM Working With Cincinnati

- IFM working 5 years on grease reduction at lift stations
- Two year study
- Success was about 75%
- 1 year ago started using different bacteria at stations that were having problems
- Success is now 99%

Benefits of Using Bacteria

- Eliminated grease in wet wells
- Float problems associated with grease are gone
- Physical removal of grease with vacuum trucks has been eliminated
- Pump draw down rates have improved
- Check valves working better

Harold the Doubter

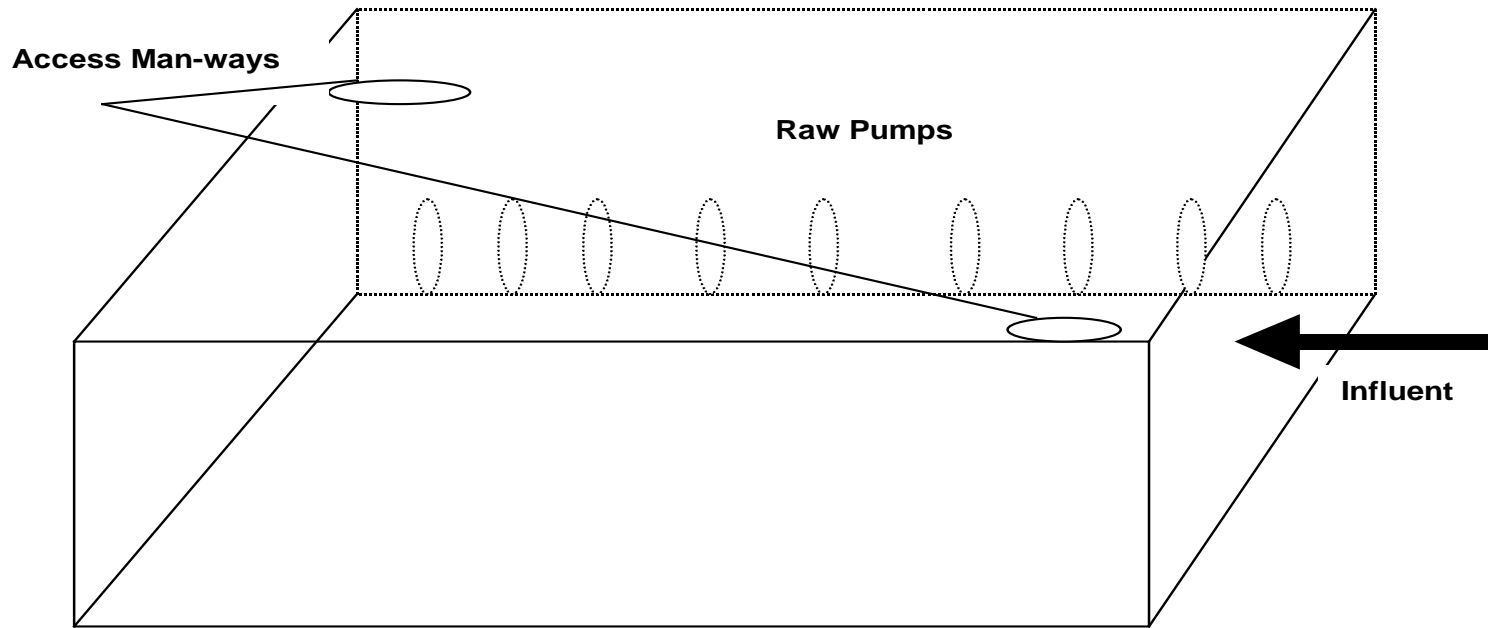
- Mariemount Lift Station
- 30 foot wet well depth
- Heavy grease accumulation
- Restaurant “Row” near by
- Float problems due to grease
- Dosed with battery powered weed sprayer
- Combination bacteria & Nitraid
- Maintenance dosage on daily basis

Harold the Doubter (Cont.)

- Returned in 2 weeks
- 50% reduction in grease cap
- Reduced dosage to weekly
- Float problems are gone
- Harold the Believer

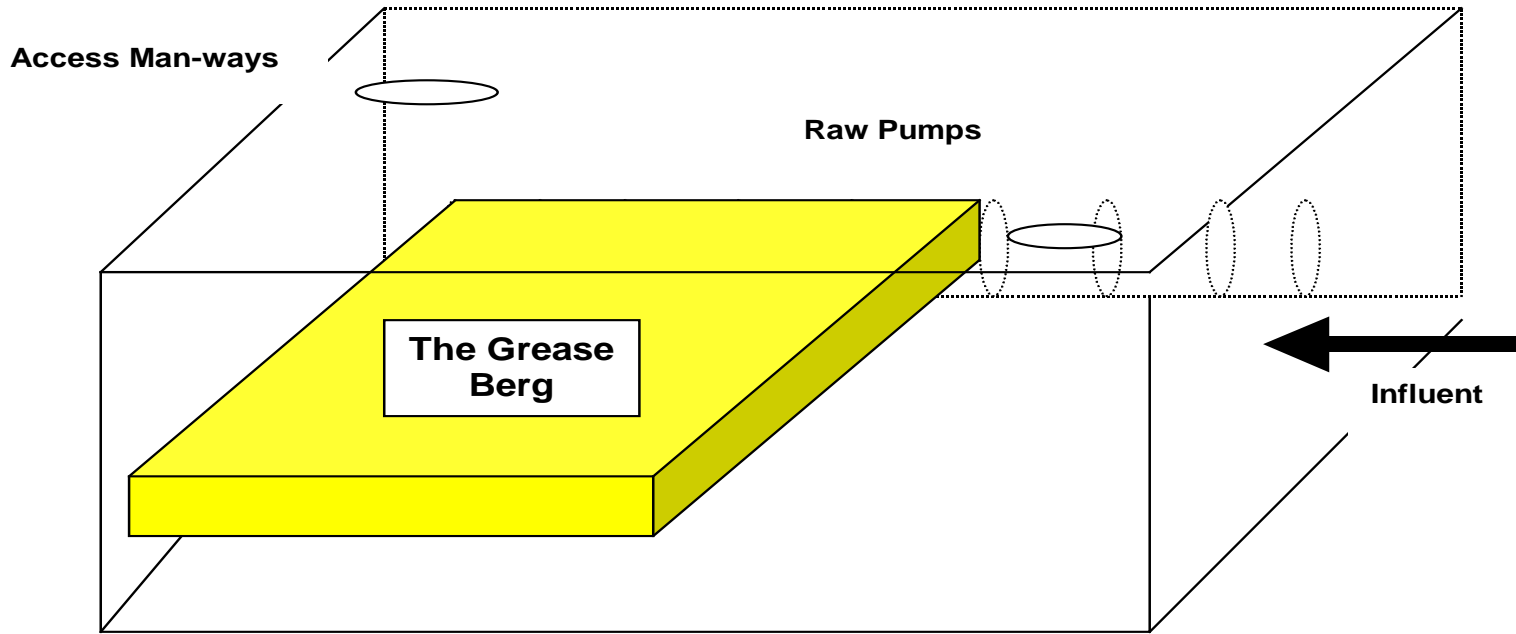
Cincinnati MSD, Mill Creek WWTP

- 200 MGD Plant
- Grease Problem in Wet Well




200' x 25' x 45' Deep

**Cincinnati MSD
Mill Creek Plant
Raw Wet Well**



Wet Well
200' x 25' x 45' Deep

 Approx. 100' x 25' x 6' Deep

Cincinnati MSD Mill Creek Plant Raw Wet Well

Grease Berg

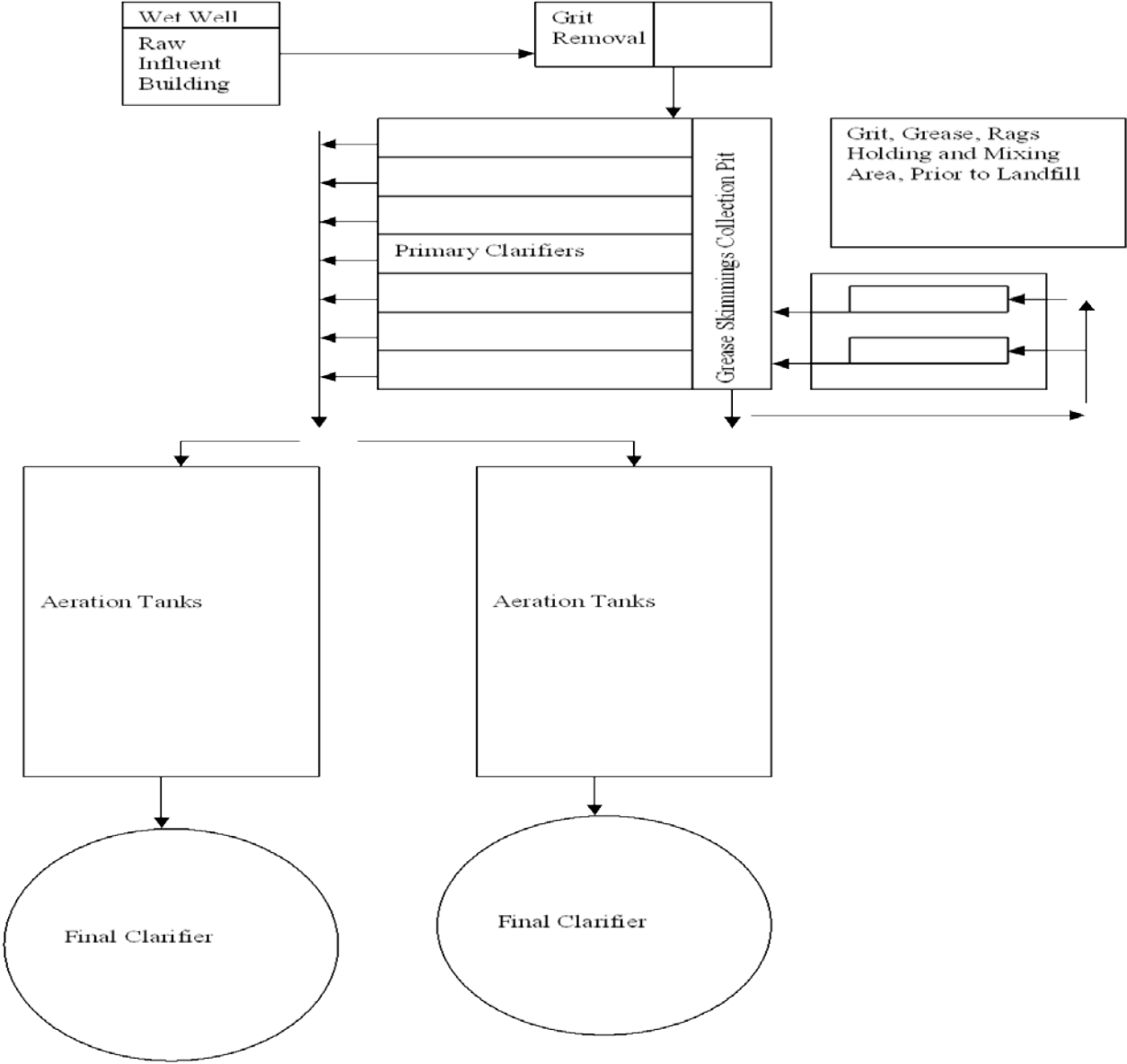
- How to get rid of?
- Confined Space
- Limited Access
- Diversion of Flow
- Lowest Quote;

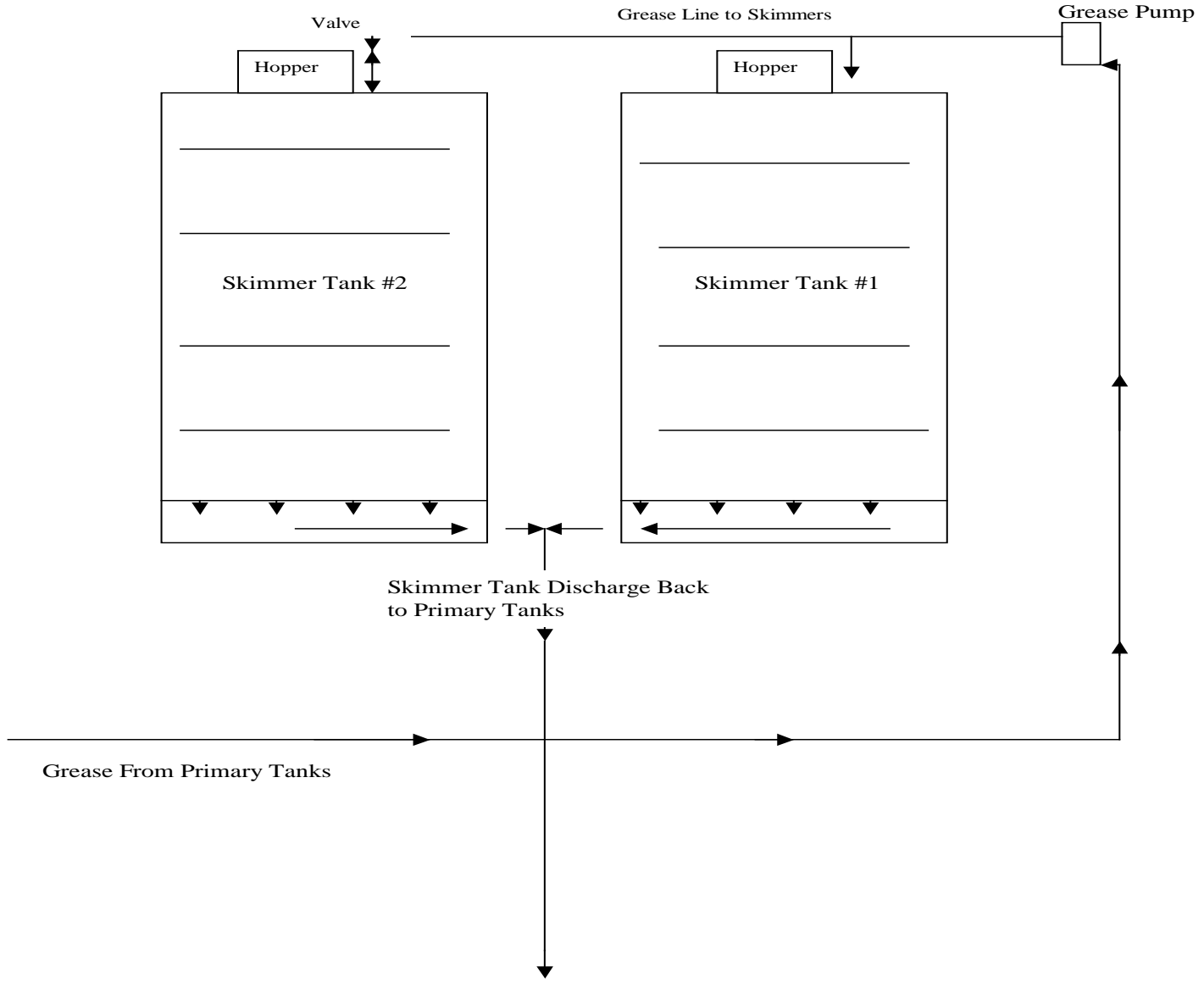
\$250,000.00

Grease Berg

- How about Bio?
- Grease Accumulation of This Magnitude Had Never Been BioAugmented
- IFM Proposed Pilot Project

Cincinnati MSD, Mill Creek WWTP





Pilot Program

- 2 Skimmers
- 1 for Pilot Project, 1 Kept in Service
- Grease Removal Operation
- Grease Mixed with Wood Chips & Grit
- Pilot to Simulate Wet Well
- Filled Tank 30' x 11' (1' West to 2' East)
- Primary Skimming Water into Tank

Pilot Program

- Used Plant Water for Carrier
- Pumped Bio-product Into Plant Water
- 4 Spray Heads to Cover Grease
- Primary Skimmer Water at Minimum to Keep the Tank “Fresh”.
- Samples Collected on Both Tanks
- Effluent Back to Primary

GREASE REDUCTION PROJECT CINCINNATI MSD

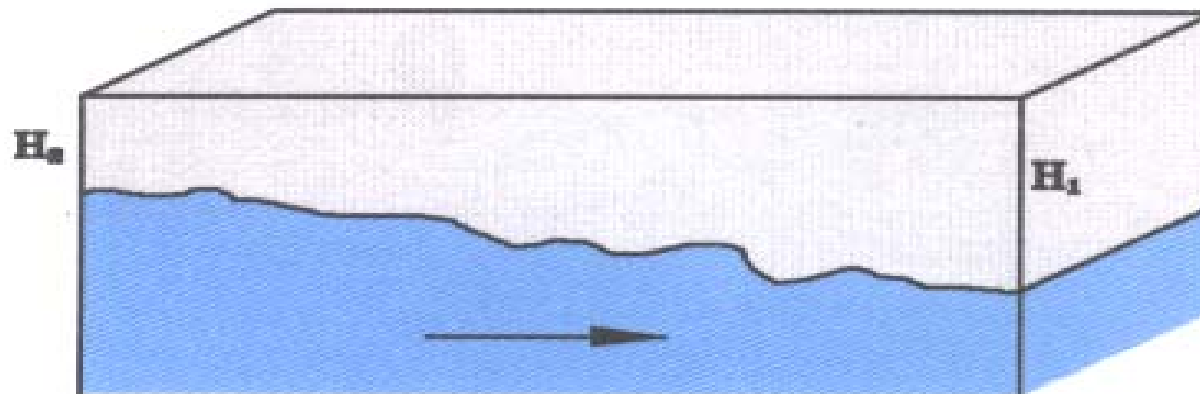
SKIMMER BLD. / SKIMMER #1
9/18/03 - 10/23/03



REPRESENTS GREASE BUILDUP



REPRESENTS PROCESS WASTE FLOW



SEPTEMBER 18, 2003

INITIAL LOAD

30'x11.5'x(H_g=2.0' H_l=1.0')

APPROXIMATE VOLUME: 570 CU. FT.



Pilot Program

- Initial Dosing 55 Gals in 7 Days
- Maintenance Dose 2.2 GPD
- Used Calibrated Stick to Measure Grease
- Noticed Primary Skimmer Flow Was Down to 20 gpm – Huge Variable!

GREASE REDUCTION PROJECT

CINCINNATI MSD

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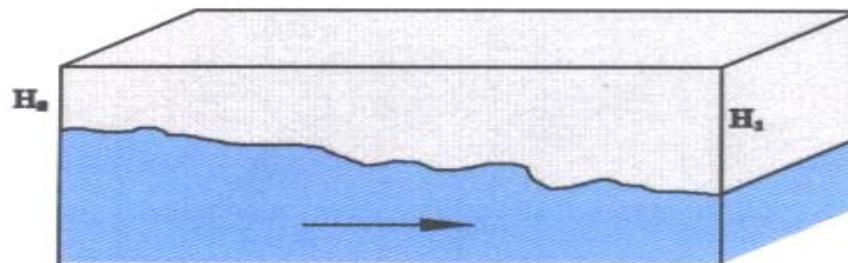
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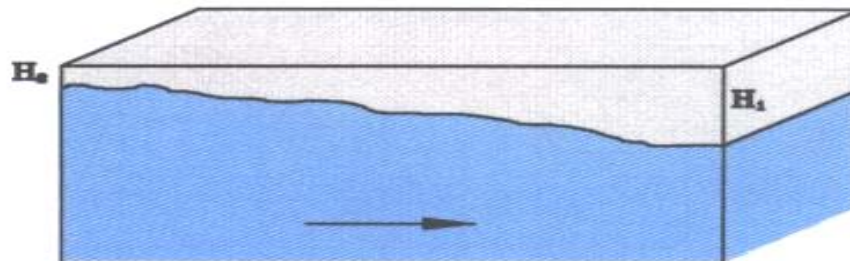


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INITIAL LOAD

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APPROXIMATE VOLUME: 570 CU. FT.



OCTOBER 2, 2003

FIRST MEASUREMENT AFTER BIO DOSING

30'x11.5'x(H₁=1.25' H₂=0.33')

APPROXIMATE VOLUME: 299 CU. FT.

Pilot Program

- Grease Had Been Reduced by More Than 50% in Two Weeks!
- Sampled;
 - Spray Bar Effluent
 - Skimmer Effluent on Pilot
 - Skimmer Effluent on Tank #2
 - Top of Grease
 - Under Grease

Pilot Program

Sample Results COD (mg/L)

	Treated Tank #1	Untreated Tank #2	Raw
9/22/03	329		
9/23/04	1890	7920	
9/24/03	338		
9/29/03	13		
10/2/03	525		
10/3/03	480		
10/6/03	410		
10/9/03	164	871	1328
10/13/03	359		

Pilot Program

Sample Results

Oil & Grease (mg/L)



	Treated Tank #1	Untreated Tank #2
10/2/03	2.56	
10/3/03	23	
10/9/03	48.3	64.64

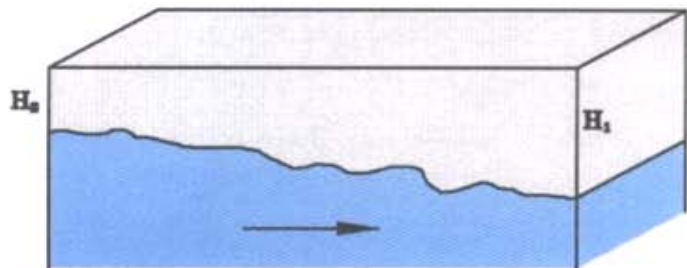
GREASE REDUCTION PROJECT

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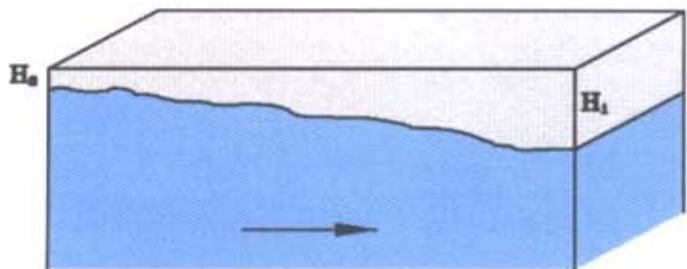


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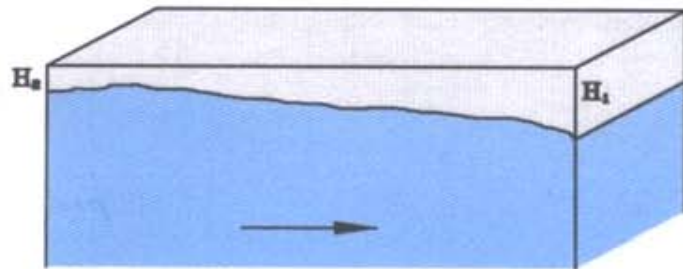


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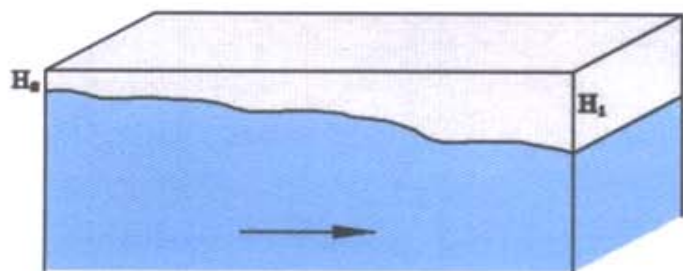
APPROXIMATE VOLUME: 299 CU. FT.



OCTOBER 9, 2003

SECOND MEASUREMENT AFTER BIO DOSING
30'x11.5'x(H₁=1.10' H₂=0.40')

APPROXIMATE VOLUME: 260 CU. FT.



OCTOBER 16, 2003

BIO DOSING STOPPED 10/14/03

30'x11.5'x(H₁=1.20' H₂=0.33')

APPROXIMATE VOLUME: 265 CU. FT.

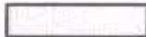

- 305 Cu/Ft Grease Removed in 4 Weeks
- Samples Show Grease Didn't Pass Through
- COD Lower on Treated Tank
- O&G Lower on Treated Tank
- Primary Tank Which Receives Effluent Had No Grease on Surface
- Project Very Successful

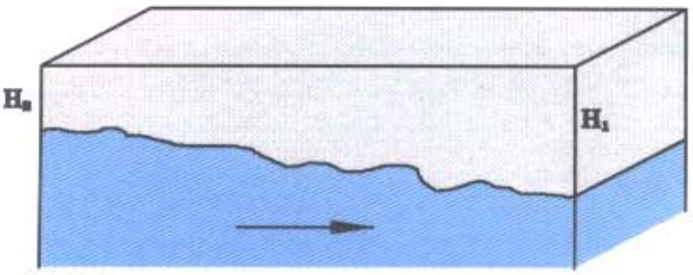
GREASE REDUCTION PROJECT

CINCINNATI MSD

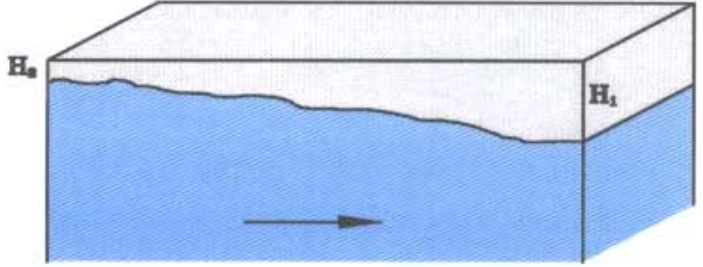
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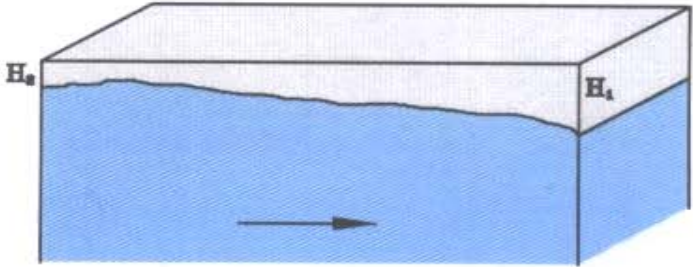
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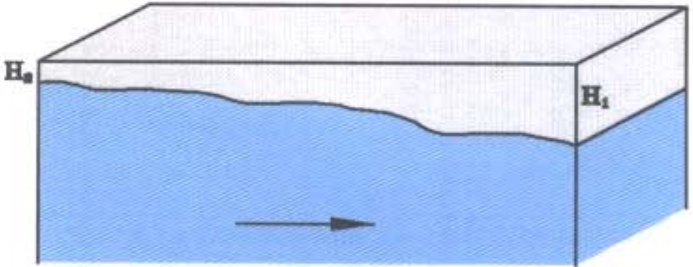
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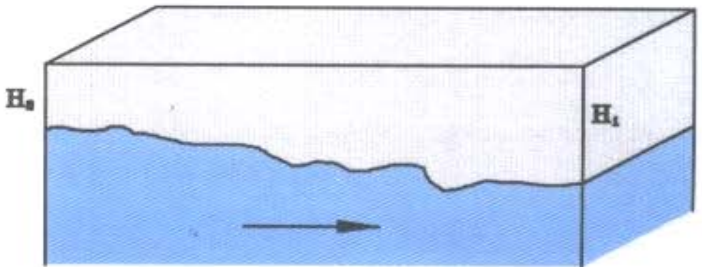
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APPROXIMATE VOLUME: 260 CU. FT.



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BIO DOSING STOPPED 10/14/03
30'x11.5'x(H₁=1.20' H₂=0.33')
APPROXIMATE VOLUME: 265 CU. FT.



OCTOBER 23, 2003
NO BIO DOSING SINCE 10/14/03
30'x11.5'x(H₁=1.80' H₂=1.0')
APPROXIMATE VOLUME: 483 CU. FT.

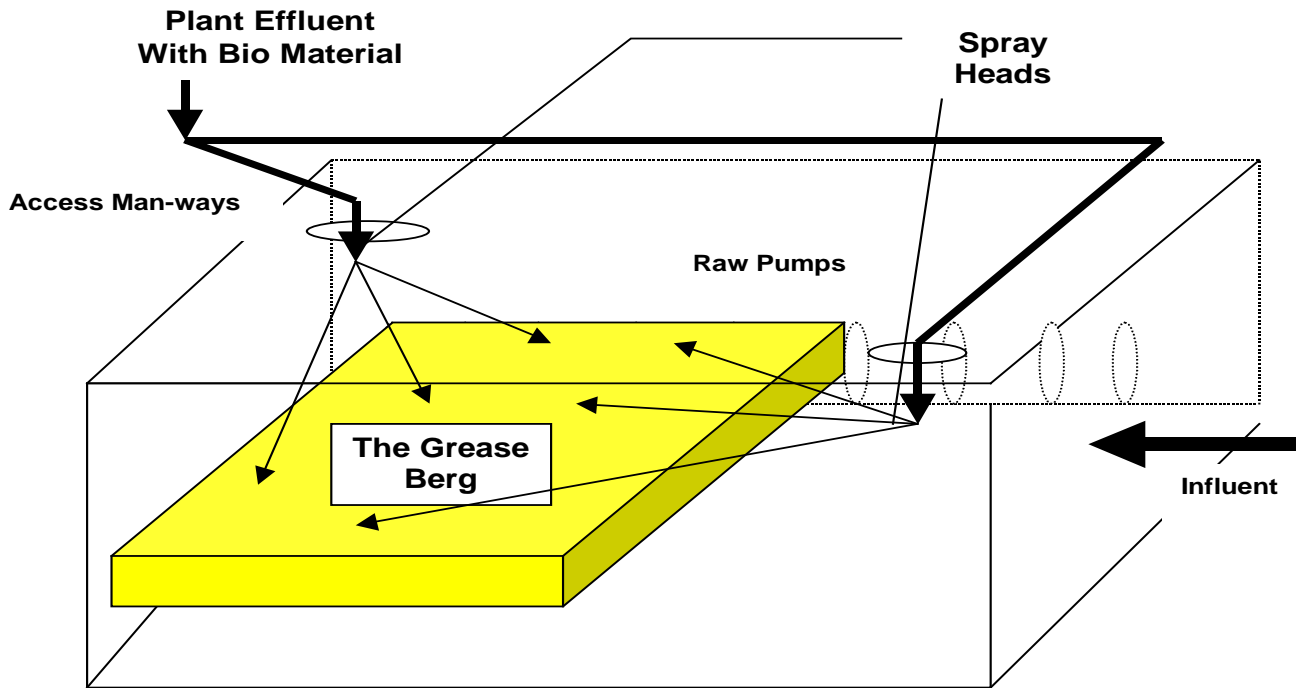
- Stopped Bioaugmentation After 4 Weeks
- As Mentioned No Control on Influent
- Operator Opened Influent to Flush Line
- Water Doesn't Breakdown Grease

Pilot Project Conclusion

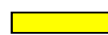
- Conservative Estimate;
1 Gallon Bio-Product Consumed
5.4 Cu/Ft of Grease!

Grease Berg

- Less Extreme Influent Grease Loadings
- Use Plant Water as Carrier
- Feed Bio-Product to 2 Spray Heads
- Runoff Goes to Primary



Wet Well
200' x 25' x 45' Deep

 **Approx. 100' x 25' x 6' Deep**

**Cincinnati MSD
 Mill Creek Plant
 Raw Wet Well**

Grease Berg

- Cost Savings;
 - Primary Grease Skimming – Huge Labor Cost
 - Actual Skimming Building
 - Labor To Build Grease
 - Labor To Scrape Grease
 - Labor To Move Grease To Mix Pile
 - Cost of Sawdust At Mix Pile
 - Labor Onto Truck
 - Tipping Fees

Grease Berg

- IFM Estimate;
 - 6 to 9 Months, 60% - 70% Reduction

Cost Less Than 50% of Physical Removal!

Grease Berg

- Downstream Benefits
 - Pumps
 - Check Valves
 - Labor
 - Skimmings
 - Organic Reduction on Primary & Secondary Treatment Systems

NO MORE GREASE BERG

- **An Environmentally Friendly Solution**

NO MORE GREASE BERG

- **An Environmentally Friendly Solution**
- **Extremely Cost Effective**