





# CBWWTP PRETREATMENT PROGRAM



# The Issues

- Grease is entering the system and affecting performance and operations at the plant and in the collection system
- The Town experienced four sanitary sewer overflows from 2009-2011 that were caused by grease buildup
- Collection system requires increased maintenance
- Grease must also be removed from the wastewater plant headworks building. The grease removal at the plant is expensive
  - ▣ \$5800 spent in the last 12 mo
- We are obligated by our permit to take actions to prevent sewer overflows and interference at the plant
- The majority of this grease is delivered to the system from restaurant services



# Residential Taps

2 years post cleaning



Tap shows some signs of grease build up, not much in invert

2 years post cleaning



Not much grease build up



# Restaurant Taps

## Pre-cleaning



Large amount of build up on pipe wall, invert beginning to channelize, constriction downstream

## Post cleaning



Cleaning has removed some of the build up, older/harder grease remains at sides of flow



# Restaurant Taps on Elk

## Post cleaning



Pipe post cleaning, some grease remaining on sides, pipe has a generally circular shape

## 6 months post cleaning



Large amount of grease at tap and on sides of pipe, downstream tap is constricting flow



# Comparison

## Residential Main



2 years post cleaning

## Elk Avenue Main



6 months post cleaning



# Headworks Wetwell

3 weeks after  
pumping  
grease is  
about 10”  
thick

Emergency  
backup float  
affected by  
grease





# Headworks Wetwell





# FOG Pretreatment Program

- ❑ Grease interceptors are required for all food service establishments – definition and sizing is in the program document (minimum 500 gal)
- ❑ Interceptors are subject to inspection and regular pumping
- ❑ Restaurants without interceptors can apply for a variance of up to 5 years
- ❑ Variance terminates upon change of ownership or issuance of a building permit
- ❑ Restaurants given a variance will be assessed a pretreatment fee
- ❑ All restaurants will be required to perform best management practices for preventing the discharge of grease into the sewer system



# Pretreatment Fee

- Restaurants granted a variance will be subject to a pretreatment fee
  - ▣ Will be required to perform regular cleaning of service line
  - ▣ Restaurants with properly sized grease interceptors are excluded from the surcharge.
    - Will be required to perform regular pumping
- Each restaurant assigned a “Pretreatment EQR”
  - ▣ Equal to the sewer EQR for restaurants that are the only occupant of a building
  - ▣ Calculated based on Equivalent Use Schedule in Town Code for restaurants that are in multi-unit buildings
- Costs related to handling grease related to the restaurants are calculated and divided by the total number of Pretreatment EQR’s



# Surcharge Scenario

## Annual Costs Related to Grease

<b>Grease Pumping &amp; Hauling at Plant</b>	<b>6000</b>
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3 pumpings per year @ \$2000

<b>Accelerated Cleaning of Sewer Mains</b>	<b>2100</b>
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2 employees, 3 additional cleanings, 10 hrs per cleaning @ \$35/hr

<b>Specialized Sewer Cleaning Equipment</b>	<b>620</b>
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\$3100 worth of equipment with service life of 5 years

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<b>Total Cost</b>	<b>8720</b>
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<b>Estimated Number of EQR's w/o Grease Interceptors</b>	<b>68.9</b>
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<b>Estimated Cost per EQR/Month</b>	<b>10.55</b>
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# Surcharge Scenario

## Small Restaurant

5/8" Water Meter, 40,000 gal/mo, 1.36 EQR, 30 seats

	Ft. Collins	Telluride	Grand Junction	Crested Butte	
				Current	Proposed
<b>Base</b>	<b>8.46</b>	<b>23.61</b>	<b>71.40</b>	<b>42.16</b>	<b>42.16</b>
Usage Charge/ kgal	2.875	5.25			
<b>Total Usage Charge</b>	<b>115.00</b>	<b>189.00</b>			
Loading surcharge/kgal	3.367				
<b>Total Loading Surcharge</b>	<b>134.68</b>				
Accelerated Cleaning Charge/EQU			3.79		
<b>Total Accelerated Cleaning</b>			<b>15.92</b>		
Pretreatment Surcharge/EQR					10.55
<b>Total Pretreatment Surcharge</b>					<b>14.34</b>
<b>Total Sewer Bill for One Month</b>	<b>258.14</b>	<b>212.61</b>	<b>87.32</b>	<b>42.16</b>	<b>56.50</b>



# Surcharge Scenario

## Mid-sized Restaurant

1" Water Meter, 60,000 gal/mo, 1.91 EQR, 70 seats

	Ft. Collins	Telluride	Grand Junction	Crested Butte	
				Current	Proposed
<b>Base</b>	<b>19.52</b>	<b>47.21</b>	<b>166.60</b>	<b>59.21</b>	<b>59.21</b>
Usage Charge/ kgal	2.875	5.25			
<b>Total Usage Charge</b>	<b>172.50</b>	<b>273.00</b>			
Loading surcharge/kgal	3.367				
<b>Total Loading Surcharge</b>	<b>202.02</b>				
Accelerated Cleaning Charge/EQU			3.79		
<b>Total Accelerated Cleaning</b>			<b>37.14</b>		
Pretreatment Surcharge/EQR					10.55
<b>Total Pretreatment Surcharge</b>					<b>20.14</b>
<b>Total Sewer Bill for One Month</b>	<b>394.04</b>	<b>320.21</b>	<b>203.74</b>	<b>59.21</b>	<b>79.35</b>



# Surcharge Scenario

## Large Restaurant

1 1/2" Water Meter, 150,000 gal/mo, 5 EQR, 125 seats

	Ft. Collins	Telluride	Grand Junction	Crested Butte	
				Current	Proposed
<b>Base</b>	<b>39.28</b>	<b>94.41</b>	<b>297.50</b>	<b>155.00</b>	<b>155.00</b>
Usage Charge/ kgal	2.875	5.25			
<b>Total Usage Charge</b>	<b>431.25</b>	<b>703.50</b>			
Loading surcharge/kgal	3.367				
<b>Total Loading Surcharge</b>	<b>505.05</b>				
Accelerated Cleaning Charge/EQU			3.79		
<b>Total Accelerated Cleaning</b>			<b>66.33</b>		
Pretreatment Surcharge/EQR					10.55
<b>Total Pretreatment Surcharge</b>					<b>52.73</b>
<b>Total Sewer Bill for One Month</b>	<b>975.58</b>	<b>797.91</b>	<b>363.83</b>	<b>155.00</b>	<b>207.73</b>



# Surcharge Scenario

## Monthly Charges

EQR	Monthly Surcharge
1.00	10.55
1.36	14.35
1.91	20.15
2.46	25.95
3.01	31.76
3.56	37.56
4.11	43.36
4.66	49.16
5.21	54.97
5.76	60.77