




**AquaPure**

House Calls for Industrial WasteWater

# Biological Wastewater Treatment for Industrial Applications

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# WHAT DO THEY MEAN BY... AND WHY IS IT IMPORTANT?

- **BOD 5/ COD**
  - **TKN**
  - **TP**
  - **TSS**
  - **CATEGORICAL PRETREATMENT STANDARDS**
  - **LOCAL LIMITS**
- 

**SURCHARGES???**  
**NOT FINES**





TRADITIONALLY,  
PHYSICAL/  
CHEMICAL  
TREATMENT HAS  
WORKED FOR  
INDUSTRIAL USERS...

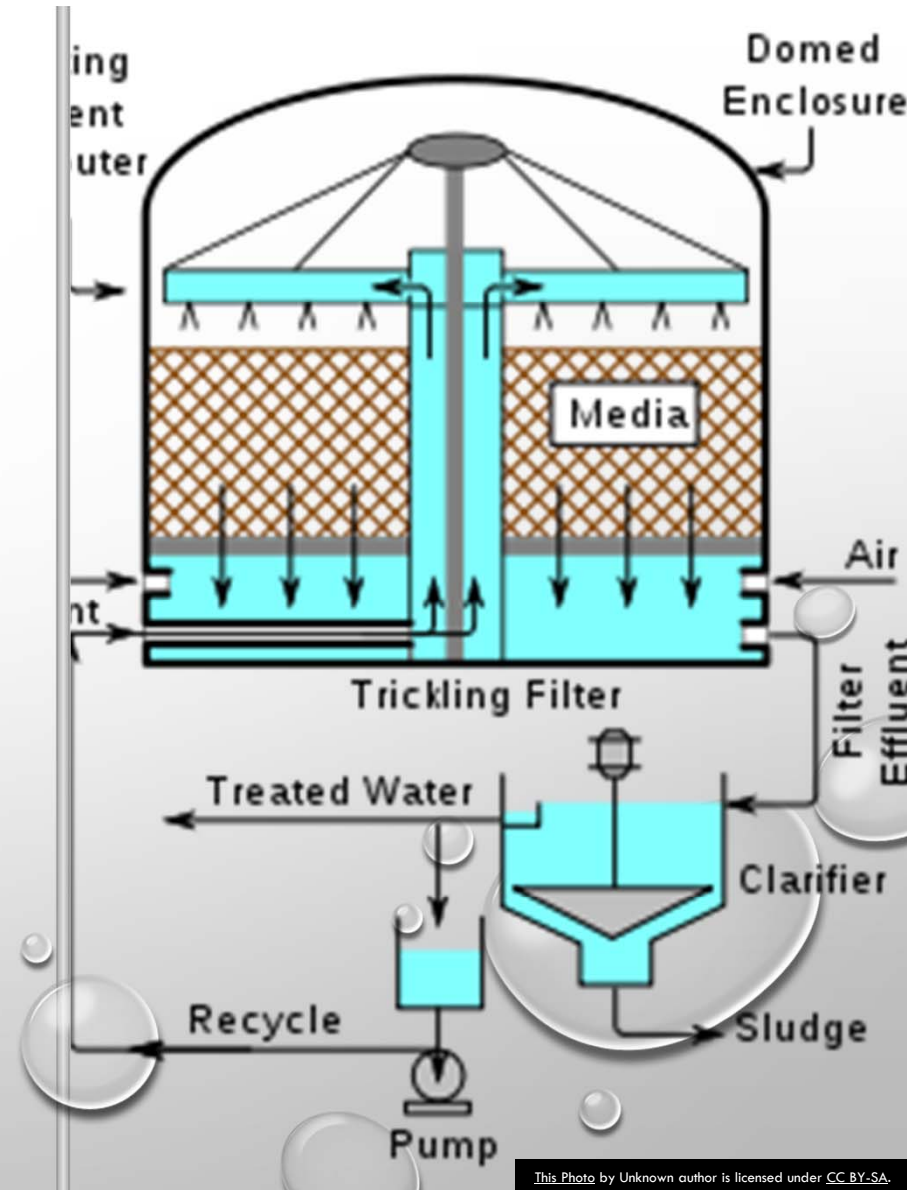


NEW LIMITS ON  
PERMITS MEAN  
NEW WAYS TO  
TREAT

A photograph of a wastewater treatment plant. In the foreground, there is a large, circular aeration tank with a complex, patterned surface. The water in the tank is dark and appears to be aerated. In the background, there are several other rectangular tanks and structures, along with some tall poles or chimneys. The sky is overcast and grey. The text "BIOLOGICAL WASTEWATER TREATMENT COMES IN MANY SHAPES" is overlaid in white, bold, sans-serif font in the center of the image.

**BIOLOGICAL WASTEWATER  
TREATMENT COMES IN MANY  
SHAPES**

# INDUSTRIAL TRICKLING FILTERS

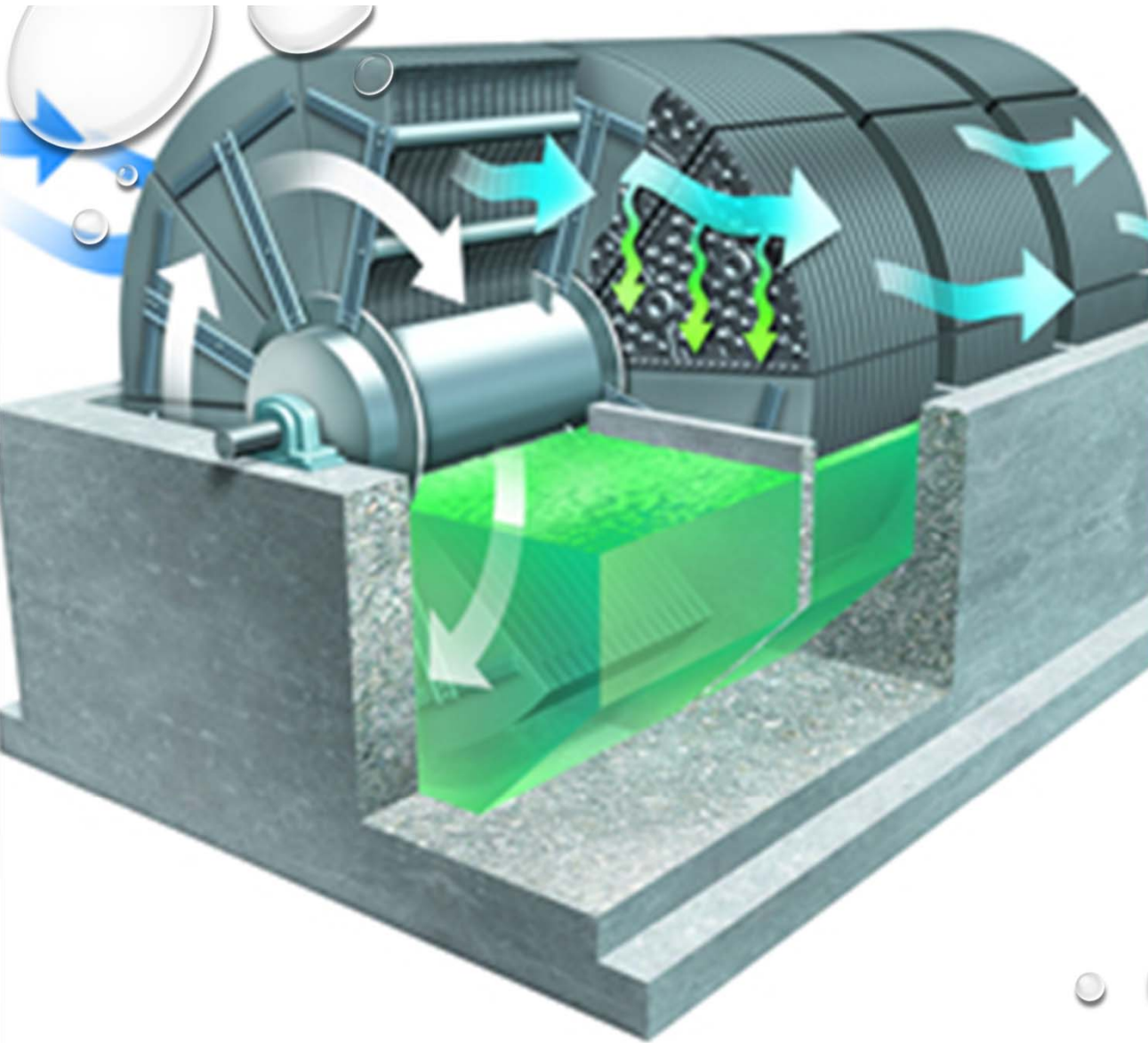


# BOD REMOVAL RATES

SOURCE: ENVIRONMENTAL ENGINEERS HANDBOOK, 1997

<b>Filter type</b>	<b>BOD Removal (%)</b>
LOW RATE	80-90
INTERMEDIATE RATE	50-70
HIGH RATE	65-85
ROUGHING FILTER	40-65





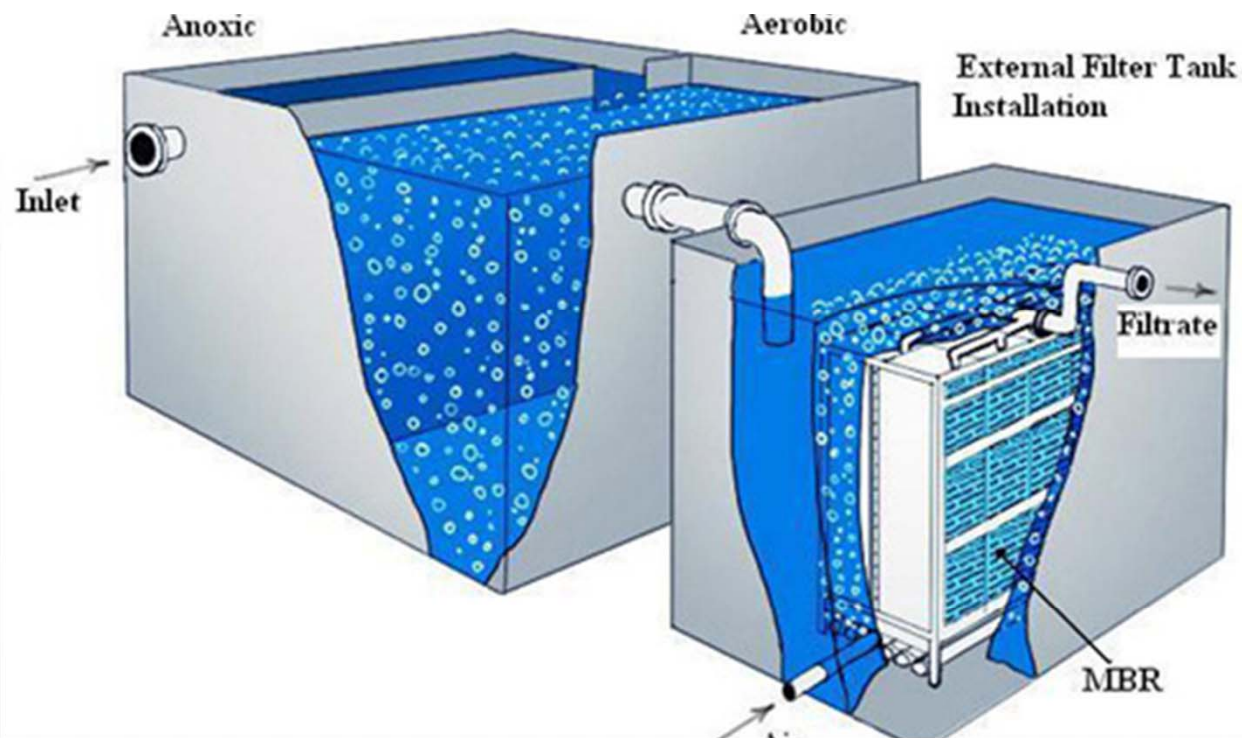
ROTATING  
BIOLOGICAL  
CONTACTOR

# BOD/COD REMOVAL RATES

MANGESH L. GULHANE, 2015

DETENTION TIME	BOD REMOVAL %	COD REMOVAL %
18 HOURS	58.8	68.1
21 HOURS	62.3	64.2
24 HOURS	67	69

ROTATIONAL SPEED IN RPM	BOD REMOVAL %	COD REMOVAL %
3	59.19	58.9
5	55.85	54.84
7	51.59	52.61

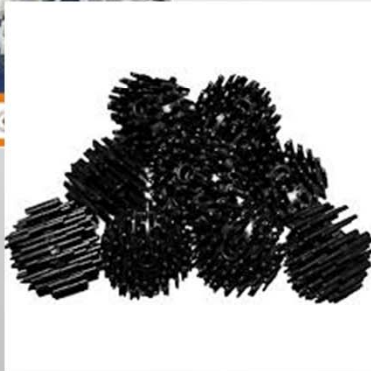


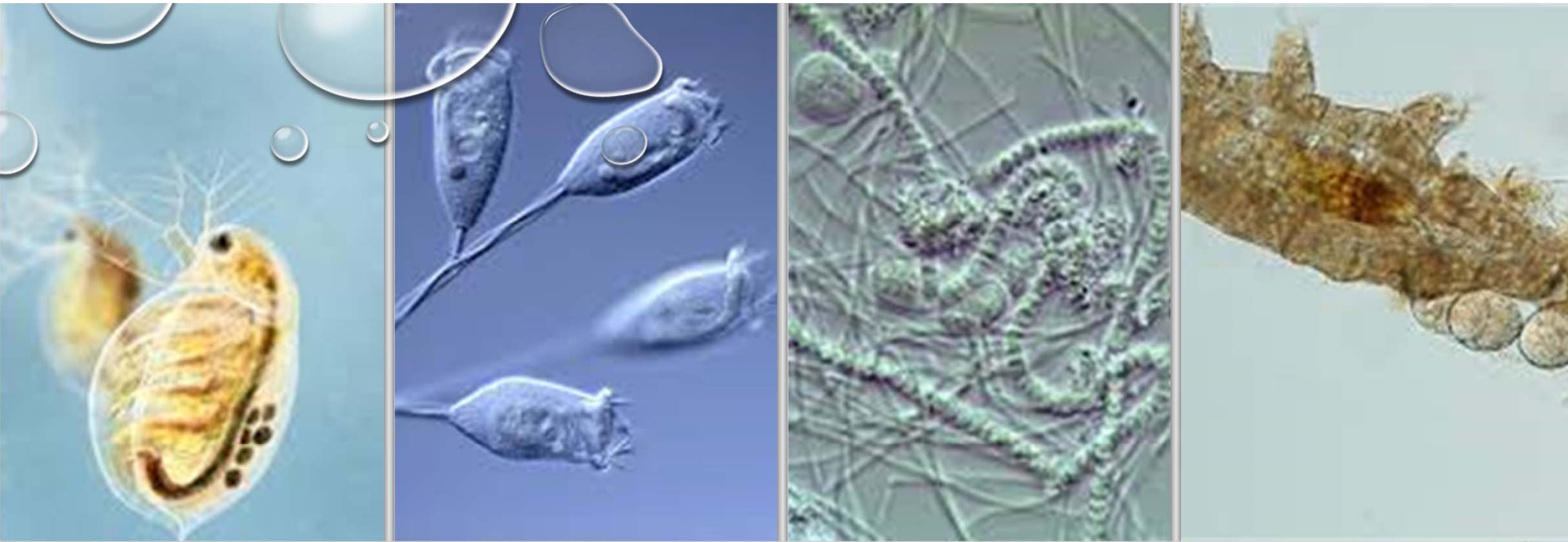
# MEMBRANE BIO REACTOR

## BOD REMOVAL RATES

Parameter	Influent (Commingled)	Effluent
Wastewater Flow	300,000 GPD	-
BOD	1,133 mg/L	<3.74 mg/L
TSS	346 mg/L	<6.9 mg/L
TKN	18.6 mg/L	NA
Ammonia	NA	< 1mg/L
Total Phosphorous	25 mg/L	<1 mg/L

# MEDIA





**BACTERIA TO LOOK FOR**



# INDUSTRIAL BIOLOGICAL TREATMENT : REAL TIME



ANY QUESTIONS?

PLEASE STOP BY HUBBARD-HALL'S BOOTH 1131 FOR MORE  
INFORMATION

