

City of Anahuac

Wastewater
Treatment Plant





Bobby Brasüell



Bachelor of Science-Environmental Science, Lamar University, Fall-2013

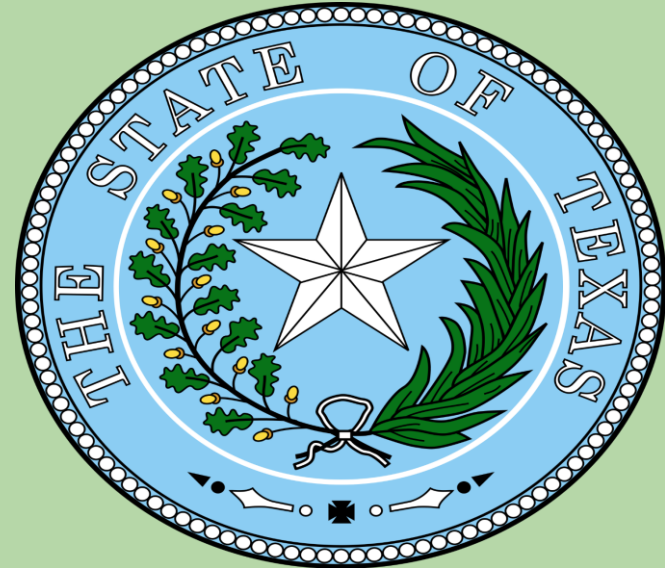
TCEQ Class B Wastewater

TCEQ Class C Groundwater

Applied for TCEQ Class C Surface Water

Active member TWUA - TNS District

10+ years water utilities

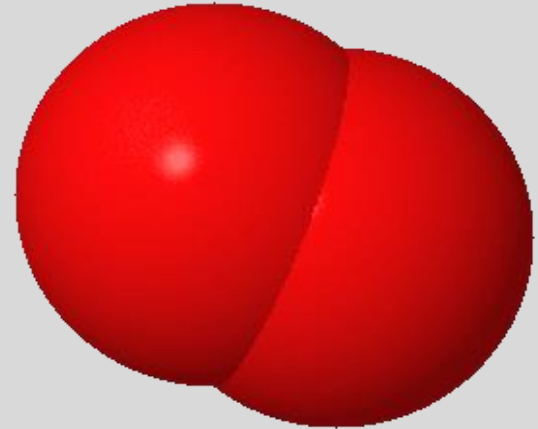




Extended Aeration Process

Active ingredient---Oxygen, as found in normal atmosphere

Metabolic byproducts are carbon dioxide and water





Two plants, one effluent (discharge)

City of Anahuac

- 1973
- 400,000 gallon per day

Trinity Bay Conservation District

- 1992
- 200,000 gallon per day





EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTSOutfall Number 001

1. During the period beginning upon the date of issuance and lasting through the date of expiration, the permittee is authorized to discharge subject to the following effluent limitations:

The daily average flow of effluent shall not exceed 0.60 million gallons per day (MGD); nor shall the average discharge during any two-hour period (2-hour peak) exceed 1,232 gallons per minute (gpm).

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>				<u>Min. Self-Monitoring Requirements</u>	
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	10 (50)	15	25	35	One/week	Composite
Total Suspended Solids	15 (75)	25	40	60	One/week	Composite
Ammonia Nitrogen	3 (15)	6	10	15	One/week	Composite
<i>E. coli</i> , CFU or MPN/100 ml	126	N/A	399	N/A	Two/month	Grab

2. The effluent shall contain a chlorine residual of at least 1.0 mg/l and shall not exceed a chlorine residual of 4.0 mg/l after a detention time of at least 20 minutes (based on peak flow), and shall be monitored daily by grab sample. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored twice per month by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain minimum dissolved oxygen of 4.0 mg/l and shall be monitored once per week by grab sample.



From source to discharge

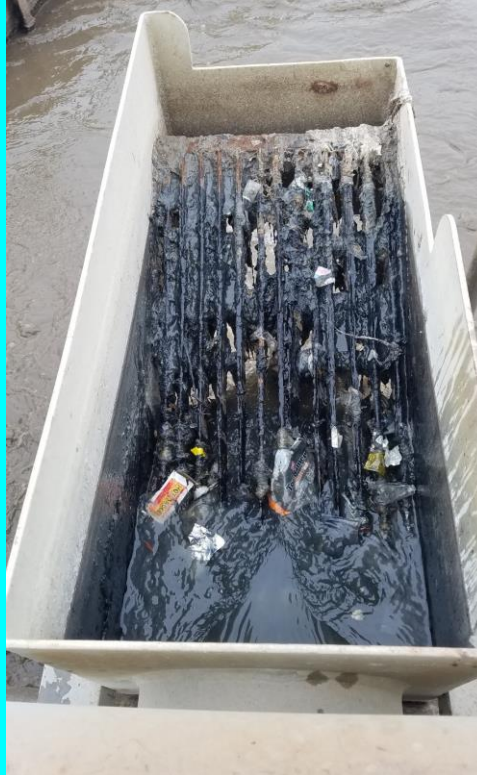
Residence, business, institution >>>>

- Service lines
- collection system
- lift stations
- Pretreatment >>> influent
- Treatment
- Disinfection
- Discharge (effluent)

>>>>receiving water

(ditch, stream, canal)

Pretreatment-Bar Screen



Treatment

- Mixed liquor
- Living organism
- Ecosystem
- Microcosm



Oxidation (aerobic) Chamber

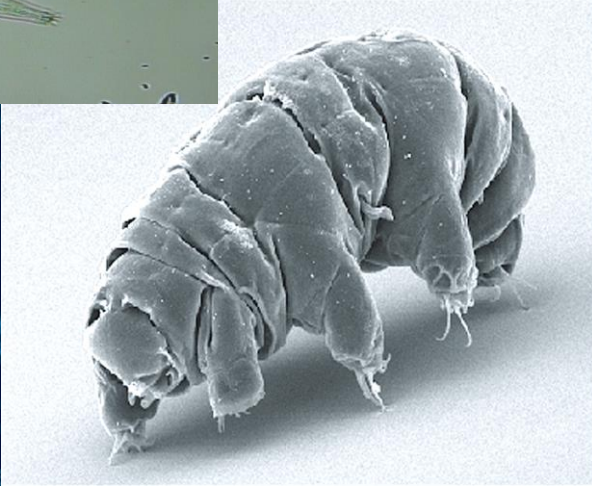
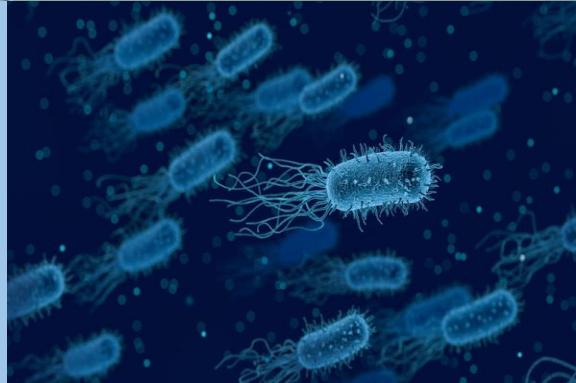
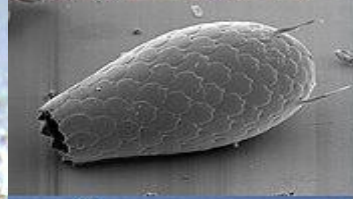
Sewage is anaerobic-lacking oxygen

By Products include

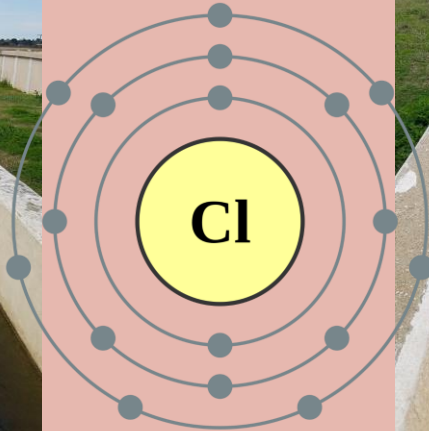
- Carbon dioxide (CO_2)
- Hydrogen Sulfide (H_2S)
 - Methane (CH_4)



Microbes



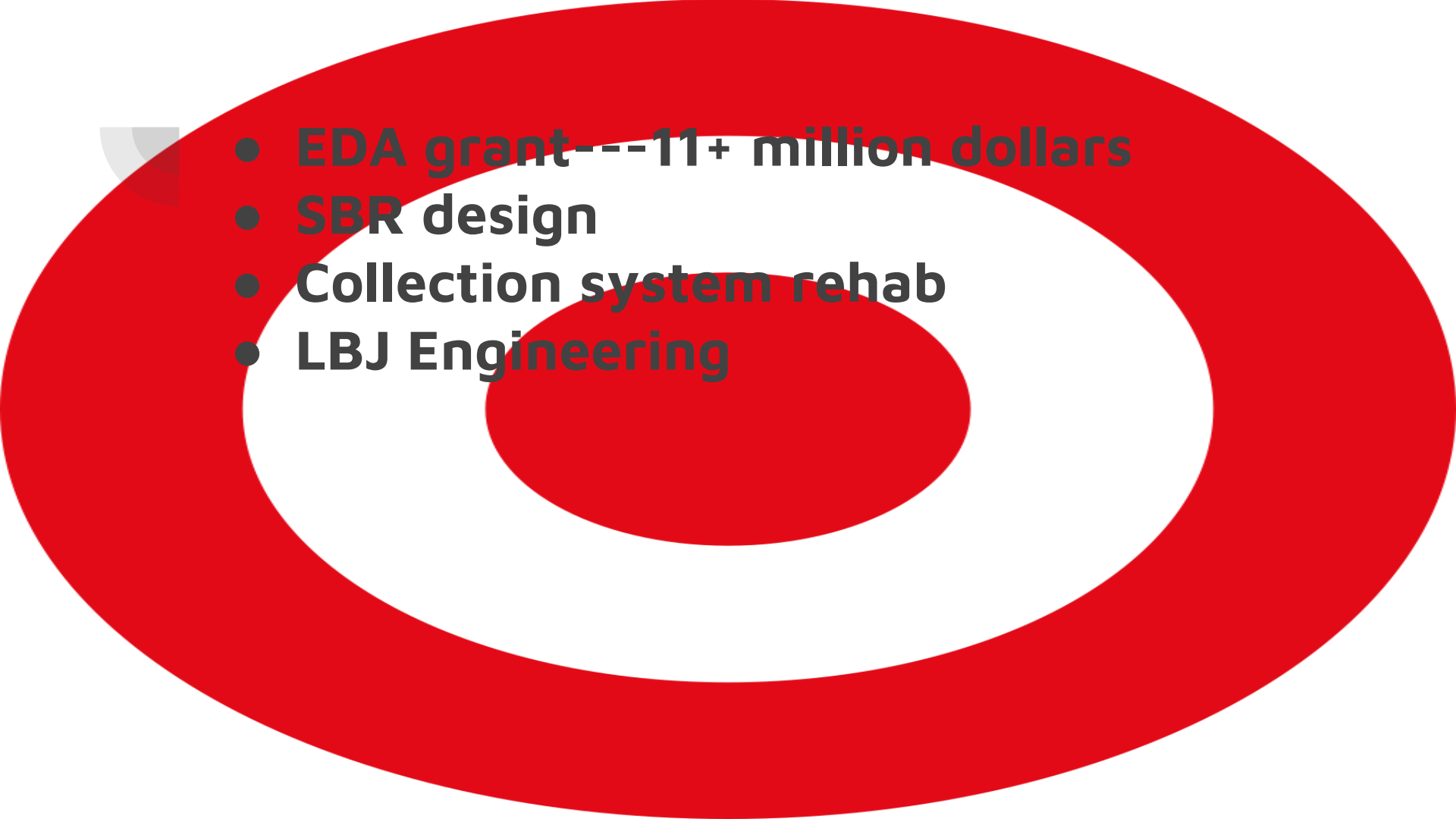
Disinfection---Chlorine gas



Effluent---discharge

Anahuac ditch>>>West Fork Double Bayou>>>Double Bayou>>>
Trinity Bay



- 
- **EDA grant --- 11+ million dollars**
 - **SBR design**
 - **Collection system rehab**
 - **LBJ Engineering**

Anahuac Plant

- Average .400
- Max 24 .650
- Peak 2 .935

TBCD Plant

- Average .200
- Max 24 .500
- Peak 2 .835

Permit Limits

- Average .600
- Max 24 no limits stated on permit
- Peak 2 1.77

Pond volume 2.5 MG

WWTP

- Average .649
- Max 24 1.47
- Peak 2 1.70
- Total 19.5
- Min .248

SWTP

- Average .195
- Max 24 .289
- Peak 2 N/A
- Total 5.8
- Min .112

Difference

- Average .454
- Max 24 1.18
- Peak 2 N/A
- Total 13.64
- Min .136

Rainfall total

13.19

Retention Pond---2.5 MG

