

PRESSURING THE SYSTEM

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WHAT IS PRESSURING THE SYSTEM?



Using the Least Amount of Force Required to
Achieve Your Objective

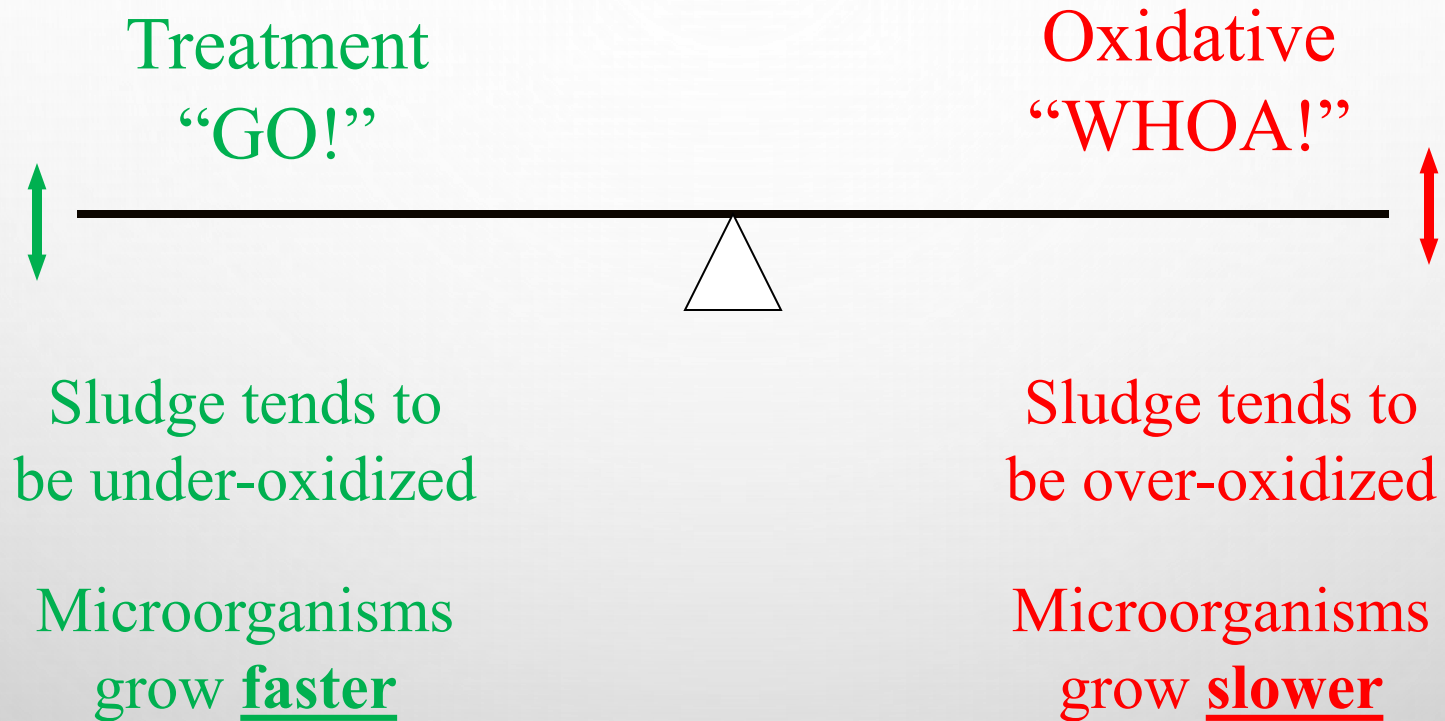
WHY APPLY PRESSURE?

- Maintain System Equilibrium
 - Equal & Opposite from Mother Nature's Pressures
- Change Existing Sludge Quality
 - Improved Effluent Quality
 - Improved Settling
- Save Money!
 - N/DN
 - Low DO

METHODS OF APPLYING GROWTH PRESSURES

- Change Waste Units
- Change Return Units
- Change Return Rate
- Change DO
- Provide Selector Effect
 - Feeding
 - Growth Environment
- Provide Step Feed
 - Influent
 - Return

GROWTH PRESSURES REALLY SIMPLE



TREATMENT PRESSURE GO!



- Increase food available (F/M)
- Decrease microorganism mass (F/M)
 - Increase waste units
 - Decrease MCRT
- Increase DO (DO) immediate effect
 - Decrease DO long-term effect
- Increase return rate (Time)
- Provide step-feed of return sludge (Time)
- Increase temperature (Temp.)

OXIDATIVE PRESSURE WHOA!



- Decrease food available (F/M)
- Increase microorganism mass (F/M)
 - Decrease waste units
 - Increase MCRT
- Decrease DO (DO) immediate effect
 - Increase DO long-term effect
- Decrease return rate (Time)
- Provide step-feed of influent (Time)
- Decrease temperature (Temp.)

EXAMPLES

- If your SOUR is too high
 - Increase MCRT to slow the growth rate
 - Reduce RSF if possible to increase SDT_A
- If you have low F/M filaments
 - Reduce the MCRT to increase the growth rate
- If you have high turbidity from fast settling
 - Reduce the MCRT to increase growth rate

INITIAL ACTION MAY REQUIRE SECONDARY OPPOSITE ACTION AS SLUDGE CONDITIONS CHANGE

- If MCRT is reduced to increase growth rate (T)
 - May have to reduce RSF due to lower solids load to clarifier (O)
- If MCRT is increased to allow better nitrification (O)
 - May have to increase RSF due to higher clarifier solids loading (T)
- If DO is lowered for simultaneous N/DN (T)
 - May have to increase MCRT to maintain sludge stability (O)
- If settleability requires reduced RSF (O)
 - May have to take an A-Tank off line to increase SOUR (T)

GROWTH PRESSURE SUMMARY

Treatment	Method	Oxidative
Increase	BOD Applied	Decrease
Increase	Waste Units	Decrease
Increase	Return Rate	Decrease
Decrease	DO	Increase
Head of tank	Step-Feed	Down tank
Increase	Temperature	Decrease

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