CONTROL MEASURES FOR WASTE WATER REDUCTION & QUALITY IMPROVEMENT AN ENVIRONMENTAL PERSPECTIVE

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INTRODUCTION

1. Sugar Industry currently proceedings towards Environment compliance on hard track. However, after releasing the fact by managements that its essential CSR compliance inspite of revenue generation source after investment.
2. I believe, being a relax nation we are still 10 - 15 year behind towards realistic approach & subsequent implementation.
3. On account of water scarcity, recycling of quantum's to minimize intake and subsequent consumption**.**

WHY THE NEED ARISES?

1) Waste water without treatment leads to environment threats, nuisance to aquatic & terrestrial eco-system with un pleasant smell
2) Excess Temperature leads to organic uncertainty of fertile lands
3) Significantly Water table approaches to lower down due to enough consumption.
4) Environment Measures
5) CSR Compliance as globally recognized
6) Government approaches to make implementation

Sources to contributes waste water

1. Mills Cooling water
2. Excess Condensate over flowing
3. Cascade Condenser
4. Steam after condensation at dryer Radiators
5. Spray Pond overflow
6. Evaporators , Juice heaters cleaning residue
7. Entrainment
8. Floor washing

Current Practices

1. Effluent discharged in larger lagoons
2. Without treatment, its polluted the ground water especially those areas under utilization for drinking. However, severity contributes with distillery wastes too.
3. Presence of grease & Oil have adverse effect over Crop yield

How way to analyze an un treated water from plants

1) Brownish appearance when discharge to settling lagoons/Sam channels
2) Low pH Acidic nature
3) High Temperature greater than 40 C
4) High BOD/COD, 5 – 10 times from NEQS
5) Ordour problems influence - breathing
6) High percentage of dissolved Organic & In organic matters
7) High percentage of carbohydrates, sulphates, grease, Oil & heavy metals

Way Forward

1. Specific Budget Allocation
2. Recycling of condensate is the preliminary action to proceed measures to reduce the plant water consumption.
3. Recycling of excess condensate, significantly contributes in designing of ETP. However, actual quantity normally workout on assumptions rather than actual grounds @ peak loads.
4. Therefore, designed normally effects once ETP meets the actual workload during season with massive variations. An estimated cost for 500 M^3 ETP 300 – 500 Millions to sync NEQS subject to civil cost as major contributor.
5. Under circumstances, termed as huge investment, wisely to proceeds phase wise.

Ways & Measures

1. Prevention or minimization of spills and leaks through regularly inspecting and repairing various units (pumps, conveyors, pipes, and other vessels)
2. Handling and storing molasses properly because they have an extremely high BOD of around 900,000 mg/l (UN ESCAP, 1982).
3. Monitoring of quantity and quality of incoming and outgoing water at the mill with flow meters measuring flow.
4. Mill operated at optimum capacity
5. Application of Imbibition with condensate only
6. Processing needs more or less 20 times water requirements on cane, however, this can be realized 0.9 times with recycling condensate.

DAF (Dissolved air floatation)

Principally, acts for removal of suspended matters such as oil, grease and solids. However,

by injecting pressurized air in to waste water stream where micro bubbles inter act with suspended solid particles. Such inter action leads to float solid particles on surface where are scraped & separated.

Subjected to Coagulation, Flocculation, Multiple media filter, Activated

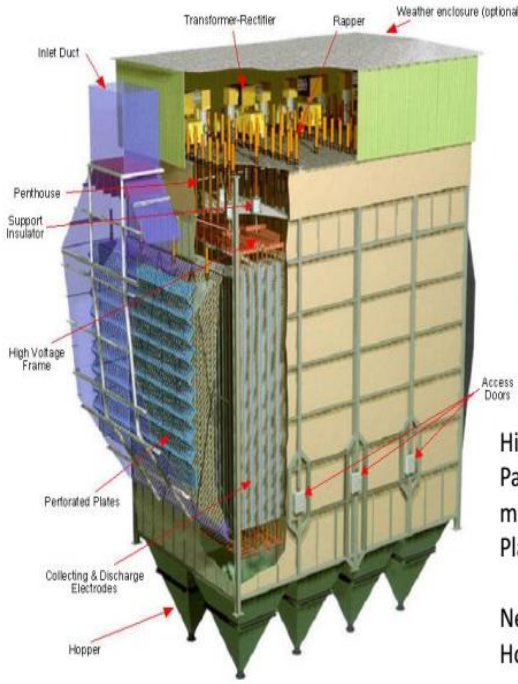
Carbon & U F

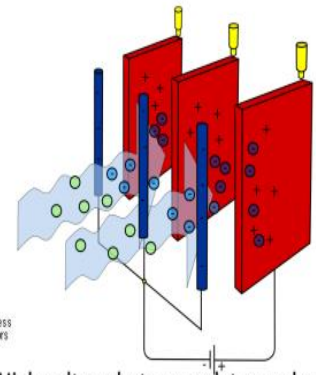
- Subjected Streams;
- Mills house effluent
- Spray Pond water
- Boiling house effluent
- Major constituents, Oil , Grease, Silt, Bagasse with slight sugar traces & Ash particles

Analysis

Description	pH	TDS (Mg/lit)	TSS (Mg/lit)	COD (Mg/lit)	Oil /Grease (Mg/lit)	Remarks
Inlet	8.02	5450	575	2690	132	Mill House effluent
Outlet	7.46	5317	84	1264	13	
Pilot product	7.12	5164	25	98	Not Detected	
Inlet	8.26	4037	200	1445	35	Spray Ponds effluent
Pilot product	8.01	2522	25	615	08	Highly contamanitated, bagasse particles,silt Mud, heavy metal
Inlet	3.85	867	171	2796	36	Boiling House effluent Chemical and acidic in nature
Outlet	4.65	647	128	2088	9.2	
Pilot product	5.31	608	32	787	7.5	

Electric static precipitator (ESP)
50 to 100 mg/Nm3.





High voltage between plates and grids
Particles are charged by the grids and migrate to the plates.
Plates gets cleaned by rapper system.

Needs large area
How lower the emission how larger the ESP

Recommendations

1. Implementations proceeds phase wise
2. PSMA take up the matter before season at Government level for at least 3 years duration to get it implement to manage cost & time.
3. Economical solution by keeping in house & technological combination to way forward.