

Sewage Treatment System
By
**Aeolus Sustainable Bio-Energy Pvt
Ltd,**

XERODROP

Sewage Treatment- Present Approach

- ✓ Biological treatment for sewage
- ✓ Bio-Methanation
- ✓ Bio-Composting of solid sludge

However

- These approaches are not sufficiently effective
- Statutory requirements are not fully complied

Limitations of Conventional Microbial Treatments for STP

- ▼ Dependency on “mood” of microorganisms
- ▼ Large land requirement
- ▼ Inconsistency of results due to multiple factors
- ▼ High maintenance costs
- ▼ Depletes atmospheric oxygen, generates green house gases
- ▼ Spreads pungent smell, large quantity of solid sludge
- ▼ Most of the plants are not scalable

Sewage Treatment – The Novel Approach



Aeolus now presents

XERODROP

The modern approach
Based on
One Century old Faraday's Laws

XERODROP - Introduction



XERODROP- Advantages

- ✓ Effective removal of pollutants
- ✓ Always dependable
- ✓ >90% water recovery for recycling
- ✓ No smell, no noise, compact size
- ✓ No chemical addition
- ✓ Simplicity in operations, Low O & M Cost
- ✓ Low solid sludge generation
- ✓ Recovery of valuable soil nutrients from solid sludge – revenue generation

XERODROP – Un-comparab advantages



XERODROP – Results Pilot scale



Parameter	Typical DSW	XERODROP Treated DSW	CPCB Norms
Colour	Dark Brown	Colorless	Acceptable
pH	4.0 – 4.2	5.9 – 6.9	Acceptable
COD	140000 - 160000	0-500	<99% load reduction
BOD	60000 -70000	0-30	<99% load reduction
Total Solids TSS	160000 - 210000	>100	Acceptable
Total volatile solids	80000 - 90000	>20	Acceptable
Conductivity	Not measurable	89.92 mmhos	Acceptable

Distillery Spent Wash Effluent - The Challenge



- Distilleries fermenting sugar cane molasses generate 8 - 15 liters of waste water per liter of ethanol produced.
- The Distillery spent wash (DSW) is characterized by being:
 - Highly acidic
 - Very High BOD and COD
 - High recalcitrant organics with dark colour and severe pungent smell.
 - High concentration of recalcitrant COD persists even after both anaerobic and aerobic treatments.
 - Melanoidins and Polyphenolic complexes formed during fermentation is not easily decomposed by any conventional treatment

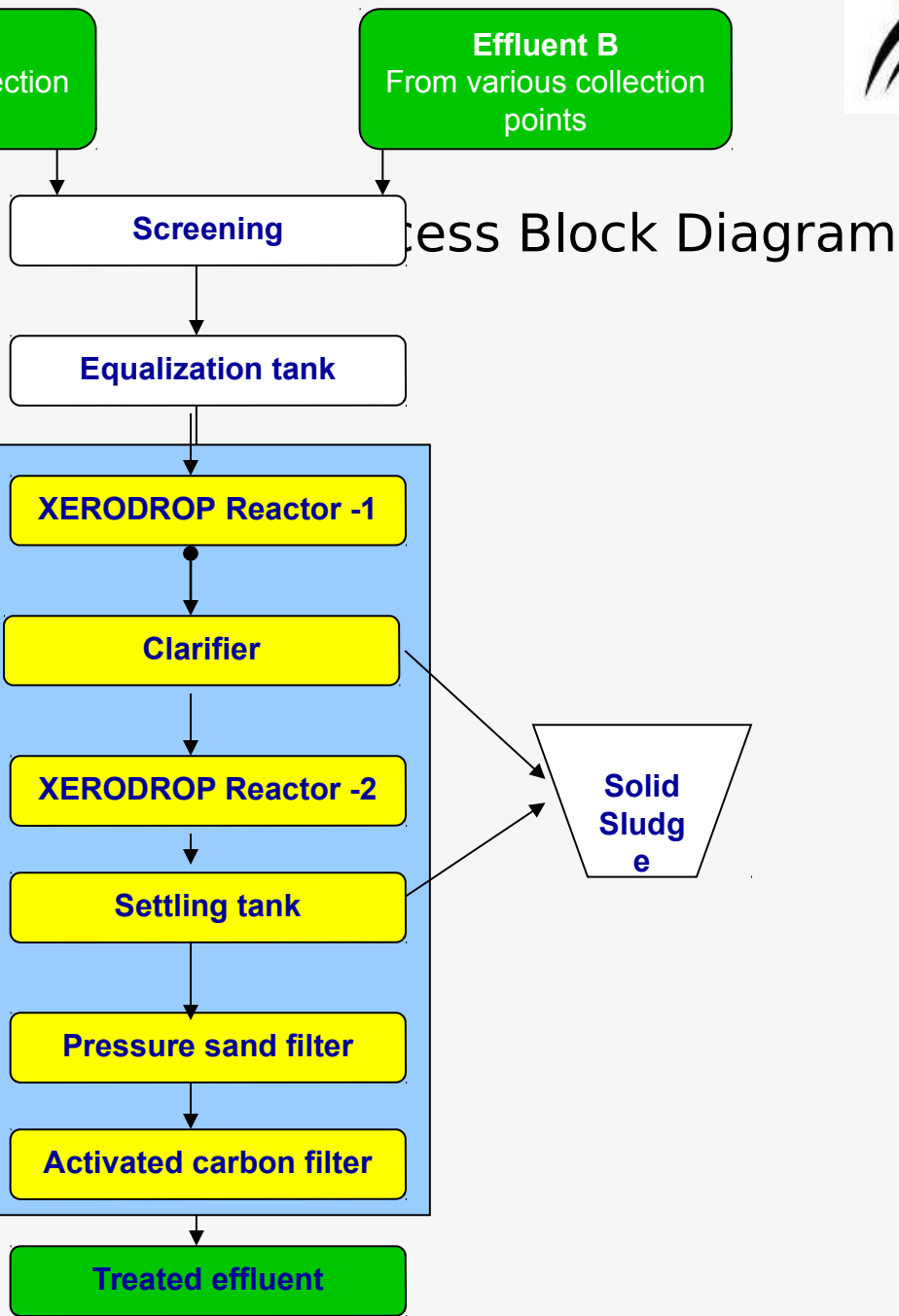
XERODROP – Pilot Plant



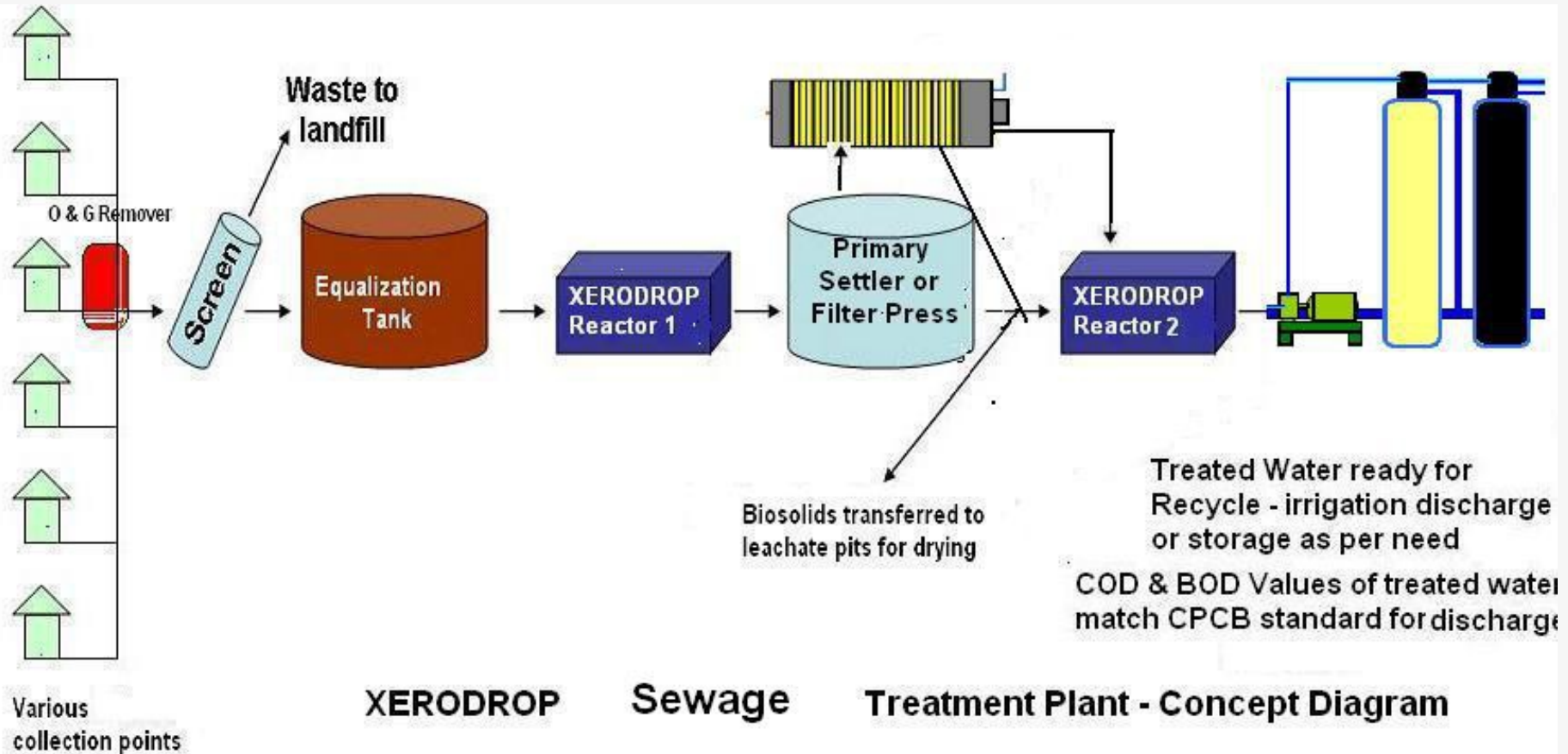
Xerodrop Distillery spent wash results



XERODROP



Xerodrop – Concept



XERODROP is brought to you by Aeolus Sustainable Bio Energy Pvt Ltd aeolus.bioenergy@gmail.com +91 9638645301

XERODROP - PROCESS

➤ Primary Treatment

- Screening
- Collection and Equalization Tank

➤ Secondary Treatment

- Electro-chemical process 3 stages in reactors
- Settling

➤ Tertiary Treatment

- Sand filtration
- Activated Carbon adsorption
- Reverse Osmosis (optional)

XERODROP Results



**Before
Treatment**



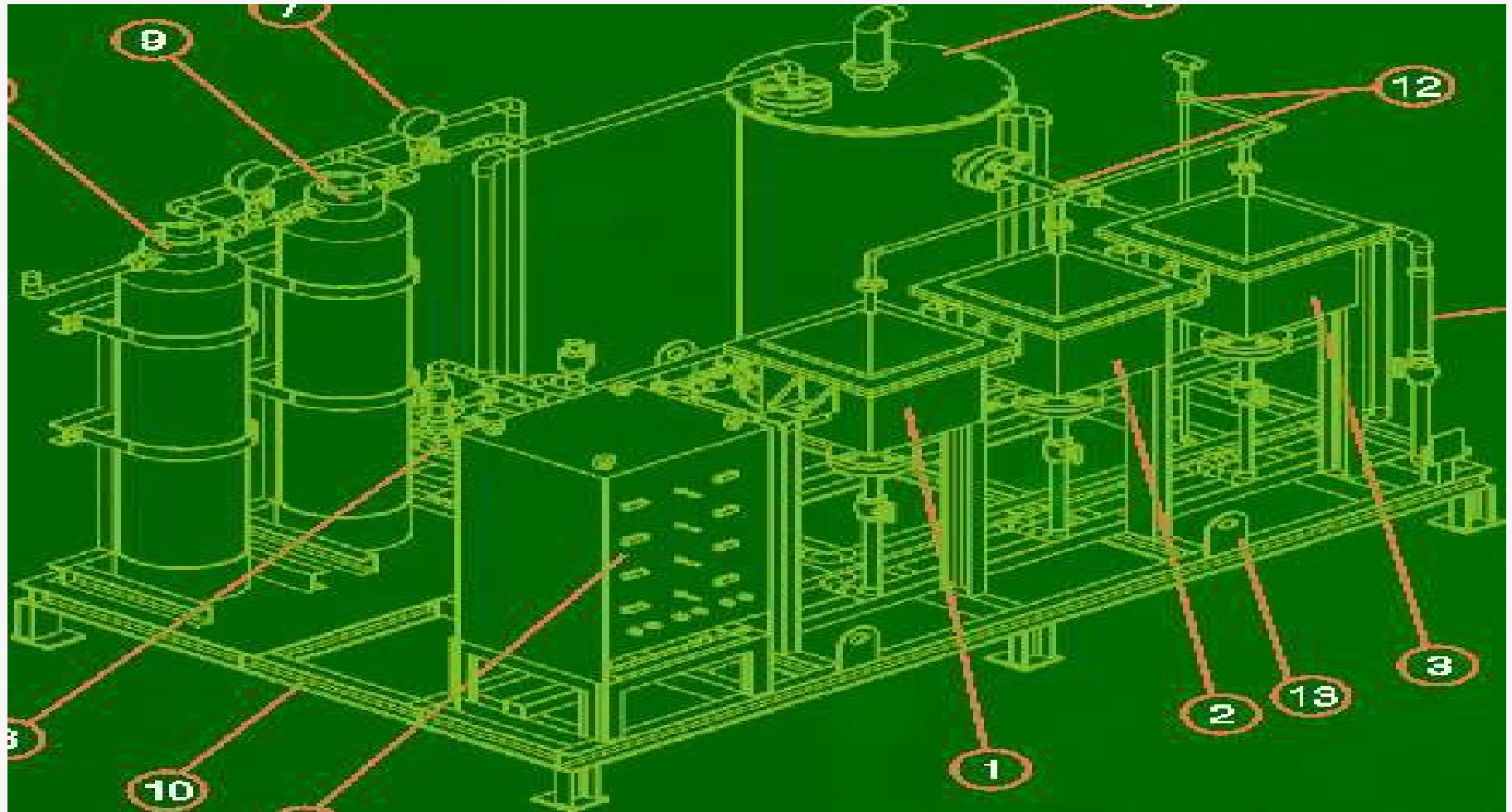
**After Stage 1
Treatment**



**After Final
Treatment**



XERODROP Plant Layout



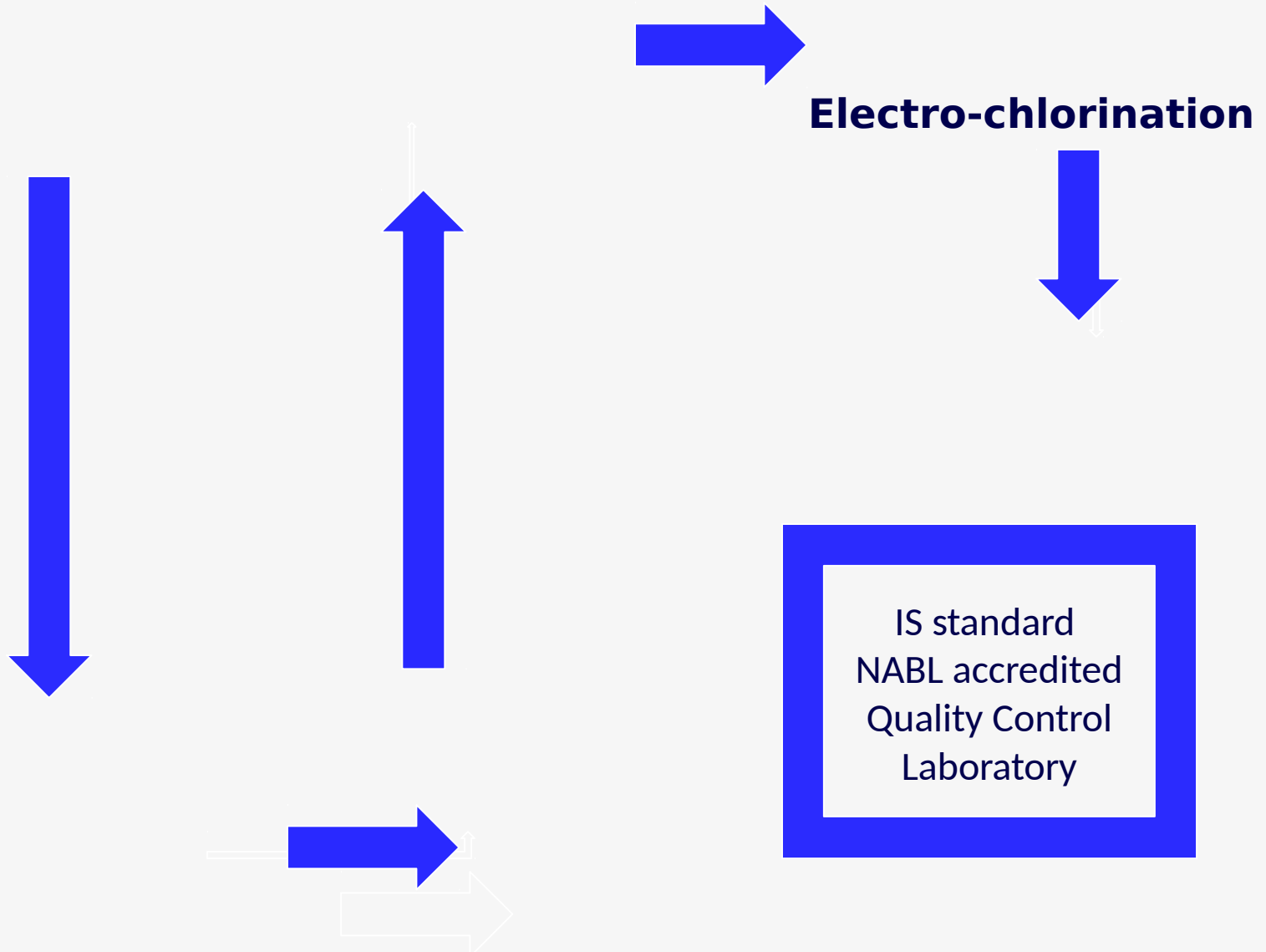


Xerodrop Infrastructure for drinking water from sewage

- Sewage can be converted to drinking water if appropriate infrastructure is created
- Singapore recycles sewage to drinking water
- Stringent quality assurance is required



Sewage to drinking water concept



XERODROP – Way forward



- XERODROP Technology is tested on various industrial effluents including power plants, fertilizers, pharmaceuticals, service stations, textile, dairy, Municipal STP, and many more
- Controlled treat ability test on a Pilot plant is advisable for all specific industrial effluents.
- Pilot plant of Xerodrop is available for