



*dedicated to solving problems*

## **products** ///

- Algae Control
- Ammonia
- Calibration
- Chlorine
- Conductivity
- Cooling Tower Monitoring
- Dissolved Oxygen
- Interface Level
- Nitrate/Nitrite
- Odour FOG Control
- pH/ORP
- Self Cleaning Filters
- Sludge Blanket Level
- SRT Control
- Suspended Solids
- TOC/COD
- Turbidity

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## **/// BYO-GON PX-109® Background**

***(What is it and How Does it Work?)***

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### **Case Study 1**

*Pulp & Paper Mill, NY*

#### **Problems:**

- Odors, poor settling, TSS/BOD violations, sludge buildup in lagoon.

#### **Results:**

- Eliminated odor complaints, reduced measured H<sub>2</sub>S by 99%
- Final TSS improved by 90%, BOD by 60%
- Sludge depths reduced from 6-8 ft. to 1-2 ft.
- Facultative bacteria assisting in sludge digestion.

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### **Case Study 3**

*Pulp & Paper Mill, MA*

#### **Problems:**

- Poor settling sludge, high polymer costs
- High secondary WAS generation, disposal costs
- Sludge odors.

#### **Results:**

- Odors eliminated in sludge.
- Reduced aeration requirements by 50%.
- Reduced WAS generation -reducing operation of press.
- Cost savings in chemicals -net \$270/day

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### **Case Study 2**

*Pulp & Paper Mill, LA*

#### **Problems:**

- Poor settling causing sludge carryover to polishing pond.
- Excessive cost to dredge pond of biosolids.

#### **Results:**

- Impact of filamentous bacteria reduced. Settling improved. TSS removal efficiency increased from 40% to 70%.
- Average 3-6 ft reduction in sludge blanket in pond.

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### **Case Study 4**

*Paper Mill, NY*

#### **Problems:**

- BOD limited, resulting in curtailment of production.
- Adjoining municipal plant suffering from odors.
- City considering further limits on BOD discharge.

#### **Results:**

- City plant realized 33% reduction in WAS rates.
- City plant stabilized operations and reduced upsets.
- Mill received nearly 1,000 #/day BOD permit increase.
- No curtailments should be necessary.

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### **Case Study 5**

*Snack Food Producer, FL*

#### **Problems:**

- High surcharges
- Odor complaints
- Grease problems in pumping station and lagoon.

#### **Results:**

- Odors eliminated.
- Reduced aeration requirements by 25% (since reduced further).
- Reduced surcharges & eliminated grease problems

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### **Case Study 8**

*Dallas City WWTP, TX*

#### **Problems:**

- Excessive odor from plant
- Treatment with KMNO<sub>4</sub> -high cost, corrosive, and handling concerns.

#### **Results:**

- Odor reduced from 25-35 ppmH<sub>2</sub>S to 6 ppm.
- Eliminated hazardous chemical treatment problems.
- Annual cost savings from project over \$1,409,500

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### **Case Study 11**

*Port Neches WWTP, TX*

#### **Problems:**

- Anaerobic digester capacity increase needed.
- Sludge hauling costs excessive.

#### **Results:**

- Total solids in digester dropped from 5.12% to 2.08%. Total volatile solids reduced from 2.45% to 0.79%.
- Digester efficiency increased from 52% to 62%.
- Hauling reduced from 5 times/wk to 2 times/wk

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### **Case Study 6**

*City of Naples WWTP, FL*

#### **Problems:**

- Odors, corrosion, high cost of chemical treatment with hydrogen peroxide, ozone, enzymes, bacteria, and ferrous sulfate.

#### **Results:**

- Eliminated odor problems. Hydrogen sulfide levels significantly reduced.
- Reduced chemical treatment costs.
- Saved over \$40,000, even with increased system treatment coverage.

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### **Case Study 9**

*Bio-remediation Project, Montana*

#### **Problems:**

- Out of compliance with discharge permits for BOD
- Septic lagoon cell
- Equalization and diversion structures plugged.

#### **Results:**

- Lagoon #1 -sludge depth reduction of 68.5%, of Total Volatile Solids of 94.7%, and TSS of 68.9%.
- Lagoon #2 -sludge depth reduction of 50.2%, of Total Volatile Solids of 70.2%, and TSS of 92%.
- No noticeable odors, BOD back in compliance.

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### **Case Study 12**

*Restaurant Grease Trap, TX*

#### **Problems:**

- Grease trap pumped every 2 weeks.
- Odor from grease trap and lines.
- Lines to grease trap plugged frequently.

#### **Results:**

- Odors eliminated from system.
- Grease trap pumping greatly reduced.
- Free running and clear lines to trap.

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### **Case Study 7**

*Poultry Processing Plant, NC*

#### **Problems:**

- High solids.
- Low Dissolved Oxygen levels
- Lagoons covered with thick, greasy foam blanket.
- Surcharges on BOD and TSS being paid

#### **Results:**

- Over 8 ft. of sludge reduction. DO at 1.2-1.4 mg/l
- No odors, grease cap eliminated.
- No longer paying surcharges.

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### **Case Study 10**

*Co-Composting Facility, TX*

#### **Problems:**

- Excessive odors -citizen complaints.
- 6-7 days to achieve temperature increase to 55° C or higher.

#### **Results:**

- Less or nearly no odors emitted. Reduced complaints.
- Similar temperature rise in 3-4 days. Overall, higher temperature in window.
- Average 44% volatile reduction, total fecal red.