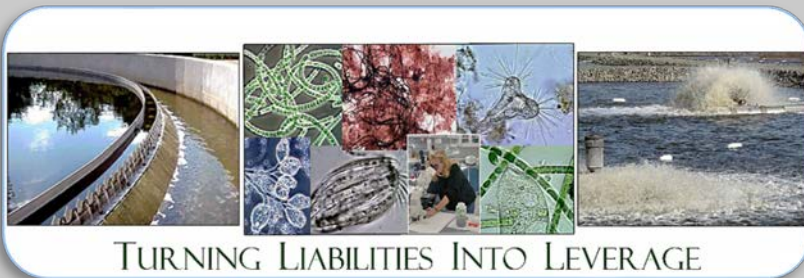


# Chemical Plants and PetroChemical Case Histories & Capabilities

Environmental Leverage<sup>®</sup> Inc.





# Chemical plant

Petrochemical plant down in Louisiana. They had an 800,000 gallon tank filled with wastewater that they wanted to clean up and empty out. We suggested a biological program-MicroSolv 400 for tank remediation.

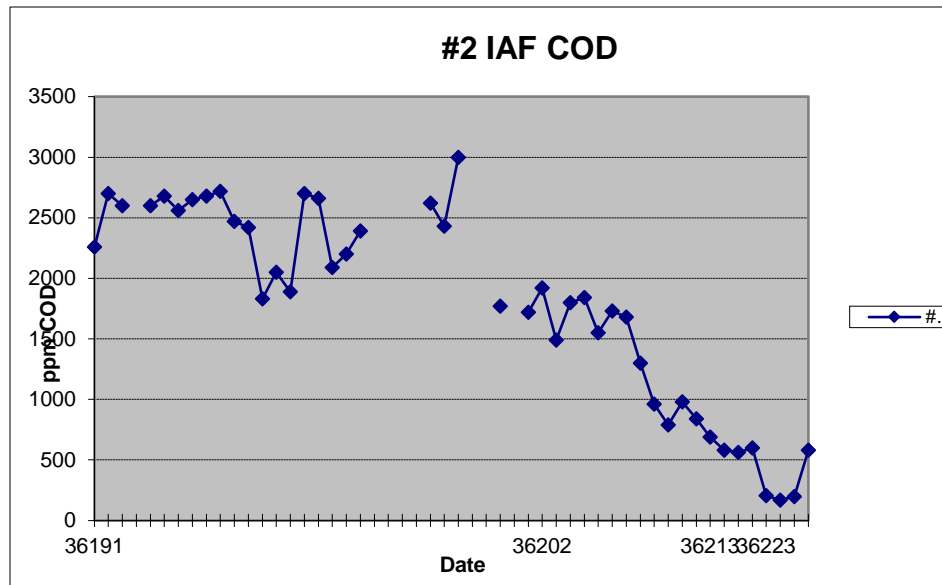
The plant started the program and had the tank cleaned up in less than three weeks, yet the tank had been sitting there filled for over three years. They were tremendously impressed. They would have spent hundreds of thousands of dollars to haul out the waste.





# California Refinery

Tank Remediation: The current COD level in tank 932 is approximately 3800 ppm, a result of NMP leaking into the system. Tank 932 currently holds about 100,000 bbl of contaminated water, and about 40000 bbl of sludge (floating).





# Tannery

## Case History: Holding Tank Treatment at a Tannery in Pakistan

Capacity  
1m<sup>3</sup>/Hr  
pH  
2.8

Temperature 90-  
95 degree c  
Acetaldehyde  
2300ppm

EG (mono-ethylene glycol) 15000ppm

2,methyle 1-1, 3  
dioxane 260ppm  
Dioxane  
140ppm

Acetic Acid  
110ppm

COD varies from  
20000ppm to 30000ppm

Target COD is  
10000ppm.

This tank has two sections, with approximate holding time of 55 hours. Its pH is adjusted by using caustic to the range pH 7.0. And temperature is also lowered by air stripping before hanging the brick. This also helps to remove VOC's from the wastewater. . The retention time of the tank is about 55 hours.

Influent COD was 39000 at the start. After hanging BioBrick in the system, effluent COD was 19200 for the outlet in only 24 hours, a reduction of 51%. Nutrients were not added until the second day, and the effluent dropped again to 15380. Third day- 13000 from a start of 39000 in a tank in such a short time!!!!.

Additional pH adjustment and mixing, along with nutrient additions were recommended, but for first time results, this is actually quite amazing!



# Chemical plant Midwest



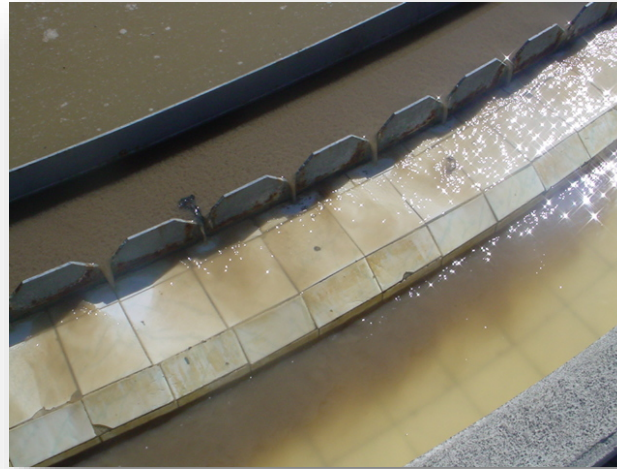
Chemical plant with  
high foaming and  
zoogloea in clarifier



After addition of  
Bioaugmentation  
MicroSolv 200 and  
MicroClear M100  
micronutrients and  
adjustments to N  
and P values.



# Chemical Plant Mexico



Before and after addition of MicroSolv 200 and MicroClear M100 micronutrients and adjustments to N and P values.



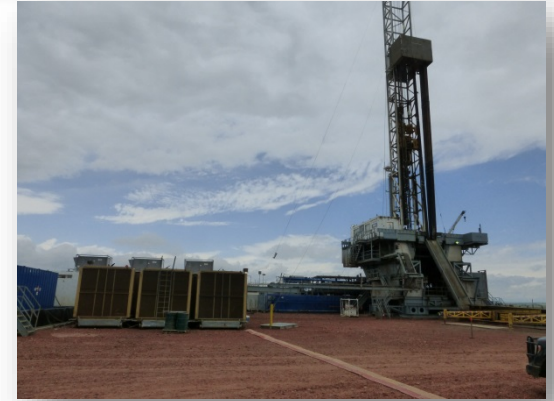
This plant could not meet permits. After onsite training, optimization of nutrient addition and installing a bioaugmentation program Effluent water was cleaner than process influent so could be recycled and reused.



# Fracking Wastewater



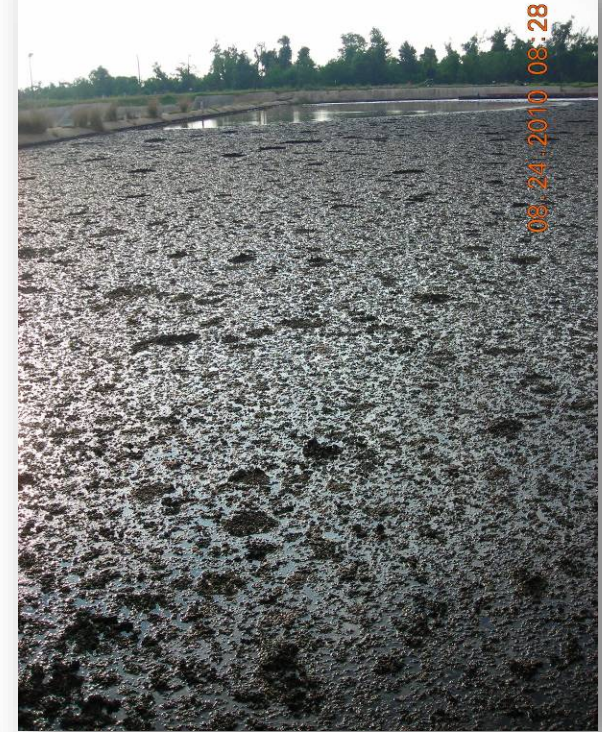
This plant could not meet permits. After onsite training, optimization of nutrient addition and installing a bioaugmentation program



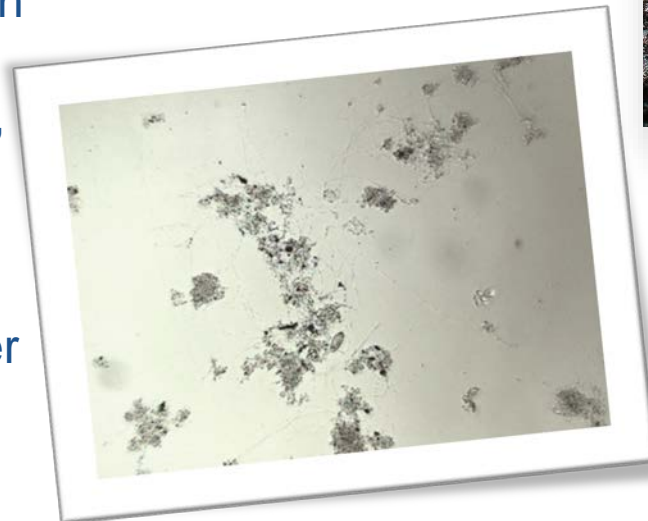
Before and after addition of MicroSolv 200 and MicroClear M100 micronutrients and adjustments to N and P values.



# Southern Refinery



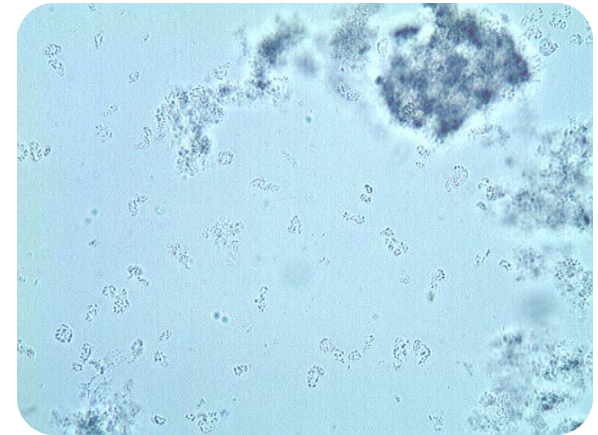
This plant was struggling with solids handling and meeting permits. After onsite training, optimization of nutrient addition and installing a bioaugmentation program, plant runs significantly better







# Canada Petrochemical



This plant had serious foaming from the UNOX into the clarifiers. Onsite training and nutrient optimization as well as recommendation to stop using Ferric Chloride as a coagulant in the clarifier. Ferric, alum or lime can bind phosphorus and actually cause nutrient deficiency if overdosed. Minor changes yet huge improvement to the plant operations.



# Chemical Plant Iowa

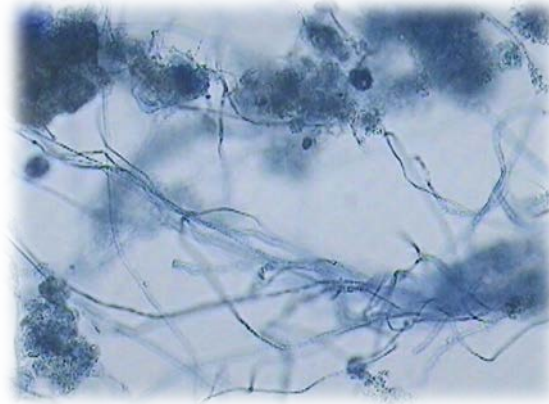
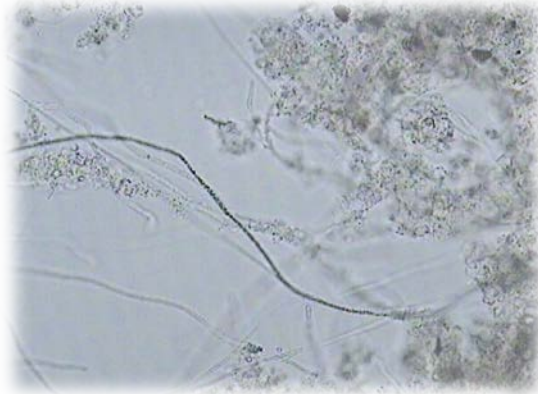


Chemical plant with  
high foaming and  
zoogloea in clarifier

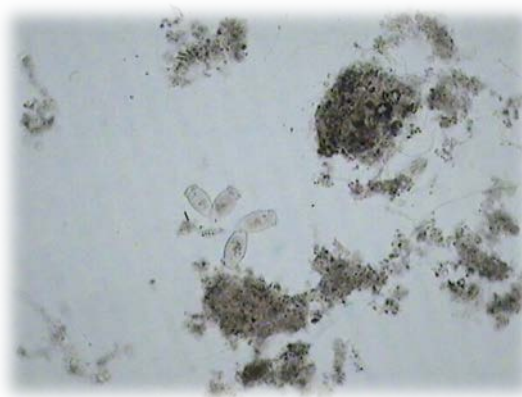
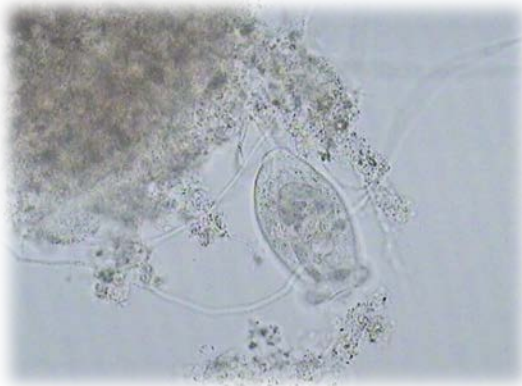
After onsite audit and  
Training, addition of  
Bioaugmentation  
MicroSolv 200 and  
MicroClear M100  
micronutrients and  
adjustments to N and P  
values.



# Chemical Plant- Canada



Before and after  
Training and addition of  
Bioaugmentation  
MicroSolv 400 and  
MicroClear M100  
micronutrients and  
adjustments to N and P  
values.



In winter months,  
addition of  
MicroClear®  
MicroChill™ and  
MicroBlock™ 5 lb



# Environmental Leverage

## The Next Generation of Solutions



- **Chemicals, Laboratory, Training, Consulting, Total Systems Approach**
  - Onsite Audits & Consulting
  - Beneficial Reuse & Biosolids Alternatives
  - Training Programs
  - MicroClear® & MicroSolv™ Bioaugmentation Products
  - Cooling Tower & Wastewater Lab Services
  - Computer Based Dosing Wizards
  - Wastewater Audits
  - Online ELearning Courses





# Wastewater Audits

## Full onsite audit of Treatment plant, or "Virtual Audits"



### Evaluation of Equipment, Process Recommendations, System Optimization, Troubleshooting, Testing, Solids Handling, etc.

The grid displays 12 panels of audit reports, each featuring a unique combination of visual and textual elements:

- Panel 1 (Top Left):** Includes a company logo, contact information, and a photograph of an industrial facility.
- Panel 2 (Top Middle-Left):** Features a detailed process flow diagram with various tanks and pipes.
- Panel 3 (Top Middle-Right):** Contains two photographs of equipment, a table titled 'EFFECTS OF SOLIDS CAPTURE ON ENERGY COSTS/LWR', and a bar chart.
- Panel 4 (Top Right):** Shows a photograph of a tank, a list of data points, and another photograph of a facility.
- Panel 5 (Middle Left):** Displays a photograph of a long, narrow tank and a photograph of a worker in a blue uniform.
- Panel 6 (Middle Middle-Left):** Features a photograph of a large circular tank and a line graph titled 'Deposition Rate Depends on Temperature'.
- Panel 7 (Middle Middle-Right):** Contains a photograph of industrial machinery, a table with columns for 'Equipment', 'Status', 'Age', and 'Cost', and a photograph of a large circular tank.
- Panel 8 (Middle Right):** Shows a photograph of a large circular tank, a table titled 'Common Design Criteria Used in USA', and a photograph of a worker.
- Panel 9 (Bottom Left):** Includes a photograph of a tank, a photograph of a worker, and a photograph of a large circular tank.
- Panel 10 (Bottom Middle-Left):** Features a photograph of a worker, a photograph of a large circular tank, and a photograph of a worker.
- Panel 11 (Bottom Middle-Right):** Contains a photograph of a worker, a photograph of a large circular tank, and a photograph of a worker.
- Panel 12 (Bottom Right):** Shows a photograph of a worker, a photograph of a large circular tank, and a photograph of a worker.



# Wastewater Training Programs



## Wastewater Training Materials 4 – CD Set

Higher Life Forms CD

Filamentous Bacteria CD

An Overview of Wastewater Training

Wastewater Microbiology

## Filamentous Identification



The Easy Way™ Training CD

Powerful Filamentous Training


## Custom Training CD or Manuals

**Microbiology Training**

**“How To Use The Microscope”**



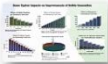
**Training & Hands On Workshop**  
Presented by Tracy Finnegan



**Wastewater Training**

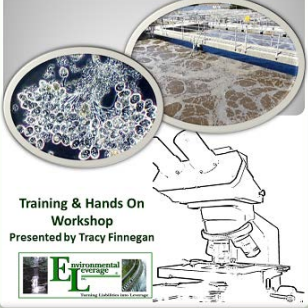
**Visual Troubleshooting**

*Tracy Finnegan*






© EnvironmentalLeverage.com

**Microbiology Training In Wastewater**




**Training & Hands On Workshop**  
Presented by Tracy Finnegan




**Microbiology Training**


**Indicator Organisms**




**Training & Hands On Workshop**  
Presented by Tracy Finnegan



**Troubleshooting Microbiology**




**Training & Hands On Workshop**  
Presented by Tracy Finnegan





**Microbiology Training**

**“Filamentous Identification The Easy Way”**





**Training & Hands On Workshop**  
Presented by Tracy Finnegan

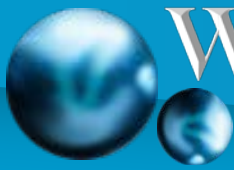



**An Overview of Wastewater Treatment**

**CUSTOM TRAINING MANUAL**

**Author Tracy Finnegan**



# Wastewater ELearning Training



## Online ELearning: Wastewater Training Courses Overview

Control and Minimization of Total costs of operations is always necessary, but guaranteed reliability and long term sustainability are the keys to transport your wastewater treatment system above and beyond normally targeted measures. These wastewater training programs are based upon years of experience and accumulation of practices on actual performance of thousands of treatment systems. These wastewater training programs have been consistently successful in teaching people how to be proactive and achieve their goals of reducing Total Costs of Operation while also achieving compliance.

You will learn step by step procedures which will enable you or your operators to develop quick, easy to establish system checks to control and monitor your system in order to predict upsets, minimize energy and chemical usage, and avoid costly repairs and unnecessary maintenance procedures.

These courses have been pre-approved for Wastewater CEU's in Alaska, Arkansas, California, Connecticut, Delaware, Georgia, Hawaii, Idaho, Illinois, Indiana, Louisiana, Maine, Massachusetts, Minnesota, Nevada, New Jersey, Kentucky, New York, North Carolina, Rhode Island, South Dakota, Tennessee, Vermont, Washington, Wisconsin and West Virginia. Some states do not require pre-approval. If you need these approved for your state, please contact our office.

These courses are eligible for CEU's, Contact Hours or PDH (Professional development hour) in Alabama, Arizona, Maryland, Virginia, South Carolina, Utah and more to come.

Now approved in Canada for Nova Scotia and Saskatchewan.

**\*\*Some states give different credits than others. Not all states give credits solely based upon contact hours. Please contact our office if you need to know the approval codes and credit hours for your specific state.**

**Just Released \*\*\***

**Secondary Clarifiers, Secondary Biological Wastewater Treatment systems, Nitrification and Denitrification, Spanish Wastewater Basics, Filamentous Identification Introductory Course Coming Soon :Filamentous ID the Easy Way**

- Online computer-based training
- Interactive courses with videos, photos, & quizzes
- Convenience and flexibility at individual pace
- No travel expenses or hassles.

[WastwaterElearning.com/elearning](http://WastwaterElearning.com/elearning)

[www.EnvironmentalLeverage.com](http://www.EnvironmentalLeverage.com)



# Environmental Leverage Analytical Services



- Wastewater Biomass Analysis
- Filamentous Identification
- Cooling Tower Microbio Analyses

**Environmental Leverage Inc.**

**Wastewater Microbiology Lab Testing**

**Standard Wastewater Biomass Analyses :**

- Cover letter with comments, recommendations and troubleshooting tips.
- Higher life form sheet
- Floc structure analyses
- Photo Sheets
- A CD with photos and videos included \$250.00

**Wastewater Biomass Analyses with Filamentous Identification** including Gram and Neisser stains, suggestions on causes and control, troubleshooting tips as well as the standard analyses. \$350.00

**Wastewater Biomass Analyses**

**Filamentous Identification**

**Filamentous Identification**

**Higher Life Forms or Indicator Organisms**

**Filamentous Identification Worksheet**

**Floc Characterization Worksheet**

**India Ink and LactoPhenol Cotton Blue Stains**

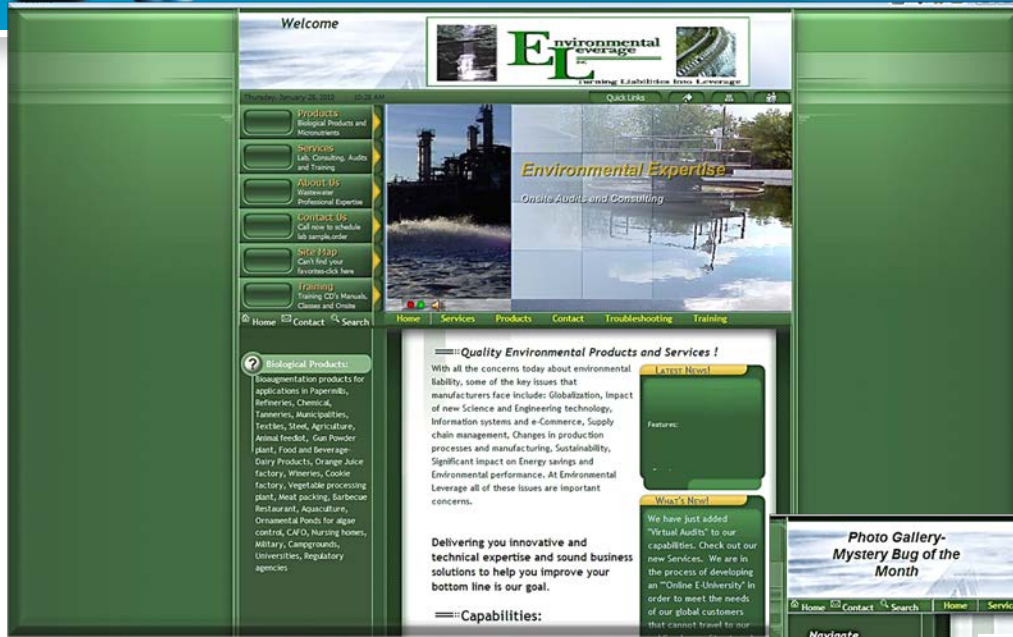
**Filament Causes and Controls**

**Send 50-100 ml sample in plastic container overnight. No ice cubes, blue ice only. Call to set up sample testing 630-906-9791. Results same day as sample received**

**Quality • Service**

**Always striving to bring the latest technology available to you!**





Welcome

**Environmental Leverage**  
Turning Liabilities Into Leverage

Quick Links

- Products
- Services
- About Us
- Contact Us
- Site Map
- Training

**Environmental Expertise**  
Onsite Audits and Consulting

**Quality Environmental Products and Services!**

With all the concerns today about environmental liability, some of the key issues that manufacturers face include: Globalization, impact of new Science and Engineering technology, Information systems and e-Commerce, Supply chain management, Changes in production processes and manufacturing, Sustainability, Significant impact on Energy savings and Environmental performance. At Environmental Leverage all of these issues are important concerns.

**Capabilities:**

Delivering you innovative and technical expertise and sound business solutions to help you improve your bottom line is our goal.

**What's New!**

We have just added "Virtual Audits" to our capabilities. Check out our new Services. We are in the process of developing an "Online E-University" in order to meet the needs of our global customers that cannot travel to our



TURNING LIABILITIES INTO LEVERAGE

- Training & Treatment Systems Audits
- Newsletters (*digital monthly troubleshooting*)
- Troubleshooting
- Filamentous ID.
- Higher Life Forms
- Bug of the Month
- Microscopic Biomass Analyses



Photo Gallery - Mystery Bug of the Month

**Environmental Leverage**  
Turning Liabilities Into Leverage

Home | Contact | Search

**Mystery Bug of The Month - From 2004 - 2017**

**What's New!**

We now have a brand new "Higher Life Form videos" in our Training CD list. Check out our new Training Materials. We are also in the process of developing an "Online University" in order to meet the needs of our global customers that cannot travel to our public classes. Stay tuned for details and updates.

**Free swimming ciliates**

These photomicrographs were taken from a wastewater sample. Most of the objectives used were 100x, 400x and 1000x. You can see this free swimmer open what looks like a flap to capture food. Notice how when you go from low power to a higher magnification, more details jump out. Do not be afraid to go up to a higher magnification, even 1000x!

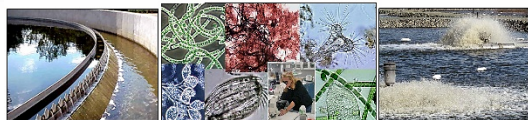
**Biological Products:**  
Bioprecipitation products for applications in Papermills, Textiles, Chemical, Tanneries, Mastic Qualifiers, Animal Feedlot, Gas Powder Plant, Food and Beverage, Dairy Products, Orange Juice Factory, Wineries, Cookie factory, Vegetable processing plant, Meat packing, Seafood Restaurant, Aquaculture, Ornamental Ponds for algae control, C&D, Nursing homes, Military, Campgrounds, Universities, Regulatory agencies.



**Join Environmental Leverage® on a Journey into the Future with our next generation of Water & Wastewater Treatment solutions**

**The future begins now. . . .**

**Environmental Leverage® Inc. bringing you Tomorrow's Water Today !!!!**



TURNING LIABILITIES INTO LEVERAGE

**Environmental Leverage® Inc.**  
**1454 Louis Bork Drive**  
**Batavia, IL 60510 USA**  
**Phone: 630-906-9791**

Fax: 630-906-9792

**Admin@EnvironmentalLeverage.com**

**[www.EnvironmentalLeverage.com](http://www.EnvironmentalLeverage.com)**

**[www.WastewaterELearning.com](http://www.WastewaterELearning.com)**



© EnvironmentalLeverage.com