

# NATURECLEAN – PATHWAYS

## EPA APPROVED - TOXIC SITE CLEANUP SYSTEMS

- ❖ Toxic Waste Cleanup Systems.
- ❖ High Speed Waste Water Systems.
- ❖ Reverse Osmosis Systems for Desalination and Black Water

### **NatureClean - Pathway's EPA Approved Process, The Answer To The Industries Complex Process Water Toxic Site Cleanup**

NatureClean - Pathway's patented, Proprietary, biosequencing system uses autotrophic, heterotrophic, and mixotrophic microbial populations to manipulate, control, removes constituents from the polluted waste stream and cleanup aqueous and solid toxic waste sites.

The proprietary biochemical reaction process manipulates the wastewater into a more workable state, being more acceptable to conversions by stabilizing the pH and configuring the constituents for consumption, transformation, utilization or precipitation.



**NatureClean**



### **NatureClean - Pathway's EPA Approved Process, The Answer To The Industries Complex Environmental Contamination From Wastewater**

Environmental contamination due to anthropogenic wastewater discharges containing high concentrations of toxic metals is omnipresent in the environment.

Heavy metal ions from manufacturing sources can compromise the integrity of various ecological cycles as well as negatively impact the health of humans through drinking water and the food chain. Increased levels of well-known poisonous metals such as arsenic, selenium, lead and mercury are frequently detected in aqueous wastes. Although there are several metal remediation techniques available commercially, most of them are not feasible and/or are very expensive and inefficient.

Typically in waste streams the heavy metals are bonded up due to the waste stream molecular structure make up and pH factors.

The biological consortia are designed to break these molecular bonds changing the pHs and adapting the waste stream that otherwise would not be available to precipitation or filtration meeting dischargeable standards.

Metals can be precipitated through our process by first being manipulated by the biological and then individually sequestered by our new Nano Technology or processed by conventional methods being chemical or mechanical.

### **NatureClean - Pathway's EPA Approved Process, The Answer To The Industries Complex Mining Waste Streams**

The mining waste streams have carried conductance levels greater than 100,000 umhos/cm containing arsenic, cadmium, chromium, fluoride, iron, lead, mercury, nickel, phosphate, sulfate, zinc, ammonia, nitrate / nitrite and others. The pHs have been very acidic starting in the 1.2 range finishing between 6.5 to 7.5 with elements all meeting State and Federal levels for discharge and in many cases for water reuse.

The conductance of treated waters has reached levels of below 200, which is better than good, in fact It is of reuse quality. The footprint of the process is directly attributed to the flow desired or the tons expected to be treated per/minute, per/hour, per/day.

There is an acclimation period which can be between 2 to 24 hours followed by a per/minute process either batch or continuous up to 1,000 gallons per/minute or 100 tons per/day with current foot prints or processes.

Our consortia formulations can be effective on any waste stream allowing conventional methods of precipitation or filtration to not only work but also be cost effective. Conventional methods, many times with these waste streams, are either not effective or not cost effective. We change those dynamics.

Every site is unique and needs to be analyzed with a pilot evaluation. This is to determine the levels that can be reached, the time and volume that can be treated.

The treatment costs are no more than, and often less than, traditional technologies but deliver results far superior to the traditional method capabilities in use now.

## NATURECLEAN - PATHWAYS



### NEW NANO FILTRATION

We have a newly patented system for heavy metal extractions and remediation from aqueous systems.

It is a newly developed novel silica based system that **selectively sequesters** heavy metals from toxic sites (mine waste etc) with Nano-Porous Silica Polyamine Composites.

This method is useful in commercial applications where the toxic metal ions can be selectively extracted and efficiently recovered from acid mine drainage in the presence of high sulfate concentrations, and their removal from seawater systems.

This is a great proprietary system for the final selective extraction after the initial NatureClean - Pathway Technologies processing.

WE'RE ON THE WEB!

SEE US AT:

[natureclean.com](http://natureclean.com)

NATURECLEAN  
P.O. Box 1109  
Ukiah, Ca 95482

CONTACT:

David Milner 707-489-4319  
[dmilner@natureclean.com](mailto:dmilner@natureclean.com)

Bob Dunlap 707-391-5432  
[bdunlap@natureclean.com](mailto:bdunlap@natureclean.com)

Steve Dangler 707-489-7613  
[sdangler@natureclean.com](mailto:sdangler@natureclean.com)

FAX: 707-462-3274



### WE BRING THE WORLD TO YOU

It is time to overcome the challenges with fresh thinking and bold new ideas. We are finding solutions to the environmental crisis. Together we can invest in the future to achieve balance with our Earth. We use technology and nature for a clean environment.

Our business philosophy is one of sustainability and responsibility. It is based upon respect for the natural environment; we are all dependent as well as considerate for human and social factors.

We understand that bacteria and other micro-organisms are the basis for life on this planet and that they have been cleaning up the environment for millennia and will continue to do so. We know that by working with nature instead of against it we can eliminate toxics from our living and working areas and re-claim land taken out of production due to mineral salts and other pollutants.



**Celebrate the Resolution of World business. No longer are we bound by borders. We can bring the best to each country for its best interest. Together we can share the knowledge of the World. Stay on the edge of the future with NatureClean.**