

## INDUSTRIAL WASTEWATER SOLUTIONS

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**SEP 24 1996**

**DEPARTMENT OF  
 COMMUNITY DEVELOPMENT**

Mr. Ed Brauer  
 City of Santa Rosa  
 Public Utilities

RE:  
 1996 EIR/EIS Wastewater Disposal Plan.

September 24, 1996

My name is Bob Rawson, I have worked in the Wastewater field 001  
 for 20 years, hold a Grade V operators license, and have taught  
 the subject for 11 years at Santa Rosa Junior College. I have  
 been involved in the Santa Rosa Wastewater issue for 10 years.

Over Christmas 1985 while most people were occupied with the  
 holiday season the City of Santa Rosa tried to sneak by a  
 negative declaration to legitimize increased discharges of  
 wastewater into the Russian River and move the sample location  
 for measuring the flow of the river down stream to increase the  
 available dilution factor. Instead of being home with my family  
 I joined about 12 people from the river area including members of  
 Sweetwater Springs and wrote the rebuttal to the negative  
 declaration. We thought that we were started down the road to  
 zero discharge. Santa Rosa has spent a tremendous amount of  
 money in those ten years and now produces a very high quality of  
 wastewater effluent at great expense. The promise to get out of  
 the river is being reneged on the basis of cost with this flawed  
 EIR/EIS.

This EIR is flawed because it failed to investigate the 002  
 potential of year around subsurface irrigation and transpiration  
 of wastewater. All of the studies pertaining to irrigation  
 suitability of particular soils, and relative cost of irrigation  
 versus river disposal must be tossed as irrelevant. You have  
 studied the trees while not seeing the forest. There is a  
 fundamental flaw in the scope of the EIR which must be addressed.

We should be growing redwood forests with subsurface  
 transpiration. Redwood is the fastest growing tree in our area  
 and the most productive tree on earth with a value of \$1.00 per  
 board foot. In 60 years an 800 acre plantation of Redwood could  
 be worth 8 Billion dollars. Such a forest could double as a  
 buffer zone and a park while paying for most of the costs of the  
 City government such as police and fire services. Why in hell  
 would you want to continue to throw a hundred and thirty million  
 dollars a year into the Russian River and simultaneously incur  
 the wrath of the Lower River residents and their law suits.

Dr. Dan Wickham will present the supporting documentation on the economics which are outlined in his written report. Aside from this we need to understand that producing tertiary water for the purpose of throwing it away is wasteful and unsustainable into the future. To understand the Biology of this I would like the EIR to consider these facts which unlike your documents are simply stated. 002(cont.)

Large diameter sewer systems, such as we find in Santa Rosa, go back to Roman times and what engineers refer to as modern wastewater treatment technology, such as activated sludge, is over a hundred years old. Typically we flush a toilet and gravity sewers carry a minute amount of sewage material away in a large volume of water. About 30 % of the sewage is settleable and the remainder is either dissolved or in very small colloidal particles. Gravity sewer systems are leaky. As sewage travels to a treatment plant infiltration by ground and rain water occurs in winter increasing the volume of wastewater arriving at the plant. Those same leaks that allow winter infiltration will also allow leakage of sewage out of the system in summer, contaminating the soil around standard sewage lines. Until sealed pressurized sewer systems become more widely utilized, wet weather infiltration into large diameter gravity systems will continue to cause serious problems for wastewater disposal and exfiltration will contaminate soil and ground water.

When the sewerage arrives at the treatment plant it's velocity is slowed down from two feet, to one foot per second allowing the grit and sand to settle. Next, the settleable organic sludge is removed by a Primary Clarifier tank. Water treated to this point is called primary effluent and has similar characteristics to septic tank effluent. It still contains 70% of the sewage materials as dissolved and colloidal compounds.

The next conventional step is Secondary treatment which is designed to convert the dissolved materials into bacterial sludges which can then be settled in a secondary clarifier tank. Secondary treatment is expensive because it uses large amounts of electricity for aeration and pumping. The conversion of valuable dissolved nutrients into useless bacterial cells adds to the primary sludge already collected and more than doubles the total sludge volume produced in a treatment plant. These bacterial cells from the secondary process are continuously removed as sludge, dewatered with chemicals and either hauled to a dump or converted to fertilizer. These sludges are considered hazardous waste until they are further treated to form biosolids.

Tertiary treatment follows secondary treatment and involves processes like coagulation, sedimentation and filtration to remove the final minute traces of colloidal material which cause turbidity. Turbidity is only significant because it indicates that other small particles such as viruses may still be present. Because of the link between turbidity and viruses, surface disposal of wastewater requires low turbidity. 002(cont.)

There are other tertiary processes which remove nutrients like phosphorus and nitrates. Tertiary treatment is expensive because it is a physical chemical process which uses energy and chemicals to remove minute amounts of undesirable constituents from the water. Expensive tertiary treated water is required if you want to subsidize a golf course or throw the water away in a river where it may pollute your drinking water supply, but is completely unnecessary for subsurface disposal. Trees are not subject to human or even animal pathogens and can use the nutrients which expensive secondary and tertiary processes remove.

The level of wastewater treatment required for any particular municipality is dictated by the disposal method selected. Realizing this, Industrial Waste Solutions Co. has researched disposal methods and realized that transpiration from subsurface emitters is the best disposal option. Wickham and Rawson have proposed that the City of Santa Rosa, and the Sonoma County Water Agency reconsider irrigation options using the subsurface components which would reduce storage needs and provide winter disposal. The Board of Supervisors with Ernie Carpenter's recommendation directed the Sonoma County Water Agency to incorporate transpiration into their EIR for the Guerneville expansion.

The first subsurface transpiration disposal system, known as the Ecochamber, was developed by Dr. Ed Burton and tested in Mt. View Sanitary District in 1978. Transpiration is not weather dependent like most other wastewater disposal methods and allows for the disposal of 7000 gallons per day per acre in winter wet weather. That compares with only 5000 gal. per day per acre which is the maximum amount that the surface pasture irrigation used by Santa Rosa might achieve even during the driest period of the summer. More significant is that surface pasture irrigation cannot be used at all during the wet weather season. Summer transpiration with the Ecochamber subsurface systems exceed 27,000 gallons per day.

With current practices winter is the critical disposal period making river discharge and extensive wet weather storage appear to be the only alternatives available. What is now clear is that subsurface transpiration can allow year-round zero discharge at lower cost than current disposal to rivers and creeks. Instead of converting the valuable dissolved nutrients into bacterial sludge using secondary treatment, it is far less expensive and more environmentally sound to grow Redwood and other tree products with subsurface wastewater irrigation to be enjoyed by the public and harvested as a resource.

Subsurface disposal is far superior to standard surface irrigation because there is no public exposure so it is not necessary to highly treat or chlorinate the wastewater. Subsurface disposal has additional advantages such as no mosquito problems from pooled water, and no slope limitations, all problems for conventional irrigation.

Trees are not subject to our diseases and are capable of utilizing the toxic substances in wastewater to good advantage. EPA studies indicate that 1000% increases in tree growth rates are possible just by applying wastewater solids to forest soils. Imagine the benefits when one can apply the nutrients directly to the tree roots. Industrial Waste Solutions welcomes your inquiries. Call Bob Rawson (707) 525-1896 Industrial Waste Solutions, 4080 Heather Lane, Sebastopol, CA 95472.]

# Can greed be one of those family values?

## Special Report from the Headwaters

By Robert Dawson

Conservatives in our country pay a lot of lip service to "family values." I wish their rhetoric could be translated into actions that meet the needs of real families and communities including education, jobs and protection of our environment. Talk is cheap.

I didn't see many conservatives at Headwaters Forest last weekend, just people who believe in conservation of our national treasures. People with jobs, students traveling with friends, retired couples, and families like mine came from all over the world to show they cared about real values. There were caring people like Ona Lisa who stopped to help the victims of an automobile accident, and the countless others who shared rides freely. I didn't see alcohol or violence or any inappropriate conduct in the three days I was there. What my two daughters and I videotaped were families, friends and patriotic citizens acting as an extended family tribe. We shared food, shelter and transportation; sang, danced and listened to good performers like Bonnie Raitt and Daryl Cherney. There were great speakers like Dan Hamburg, clergy from many denominations, and great spontaneous poetry.

We were there to defend this country against its real enemy: greed.

More than 1200 of our 7000 member tribe nonviolently crossed the line and were arrested for this very important cause. The *Press Democrat* said 900 demonstrators were arrested and the *San Francisco Chronicle* said 150. Obviously they couldn't count any better than the Humboldt County Sheriff, who estimated our crowd at 2000.

My arrest was about the 1050th. I suppose those arrested after me may not have been photographed and counted. Many of us waiting for the police bus that never came needed to use the toilet and some women were hurting pretty bad. I helped my friend Sabrina, who was also restrained in plastic handcuffs, to retrieve her asthma aspirator, because sitting on the ground outside in the cold air was affecting her breathing.

As the arrests progressed, the police ran out of plastic handcuffs and arrest forms, and we all played

pretend arrest. After about an hour of detention we were released and had to walk several miles in the dark because the police didn't have adequate transport. The lack of bus transport didn't prevent them from hauling people arrested during the day long distances from the demonstration area and dropping them off in different isolated locations.

The only hostility I encountered from police occurred when they deliberately elected to separate me from my daughter Heather without cause. Family values keep coming up for me around this event.

We should all be infuriated at the deliberate incompetence of the Sheriff and State Police management. I don't mean the mostly polite and decent officers who, with a few exceptions, conducted themselves in a friendly, professional manner. I mean the political management directing the police operations which were orchestrated to slow down the arrest process. By slowing things down to a six-hour wait, police apparently hoped to discourage the crowd of 7000 people waiting to be arrested. This studied and deliberate incompetence cost real tax-paying and service-needing families in Humboldt County a lot of money.

What the police department management should have done was acknowledge the truth and, while upholding the law, look at this event from the perspective of a fund raiser. They could have collected \$70,000 in \$10 fines instead of bankrupting Humboldt County and trying to scapegoat the demonstrators. Shouldn't the real blame for excess costs be laid to rest at the feet of the real culprits, those who would cut down those great trees for junk bonds?

The beauty of this event was that we came together as a tribe of families with real values like saving America's last three percent of old growth redwood forests from the greed and shame of Charles Hurwitz and his apologists. These forests are irreplaceable communities of organisms which the redwood symbolizes and sustains. Someone who cared about family values would want to see Charles Hurwitz in jail for robbing mill workers and their families of their pension fund, bilking tax payers of \$1.6 million from a savings and loan failure and trying to sell the last of our old growth redwood forest to Japan for quick cash.

I can't help thinking how Project 7 — growing redwoods with wastewater — would be better than trying to rob the last of our old growth treasures.

More in two weeks when we return to Headwaters for the demonstration!

