

West Marin Homeowners' Septic Gazette

"It's only common sense..."

Vol I, No. 1
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Federal

EPA says DNA tests best for identifying pollution origin

In May 2002, the EPA released its *Wastewater Technology Fact Sheet: Bacterial Source Tracking*, a paper describing Bacterial Source Tracking (BST), or testing DNA of water-borne contamination to identify the origins: human, livestock, or wildlife. "BST techniques appear to provide the best method to determine the origins of fecal contamination in water-bodies."

Methodology currently being used in the county consists of identifying *e. coli*, but not whether it is of human or animal origin. SeptTAC members have been told repeatedly (by federal, state, and county representatives on the committee) that DNA testing is "too expensive."

Not so, according to the EPA. "The cost for BST analysis ranges from \$25 to \$100 per isolate using molecular methods and from \$10 to \$30 per isolate for non-molecular methods." This is an emerging technology and costs are dropping rapidly. In West Virginia (referred to by a prominent Marin engineer as a state with "primitive" septic practices), the state worked along with universities in DNA testing in determining true sources of pollution.

If the county continues to resist BST testing, it will remain in the dark as to the origins of pollution. Question for homeowners/taxpayers: why is the county resisting DNA testing when it is the only way to determine the actual source of groundwater pollution? How expensive is it compared to the costs of overblown septic systems? If Marin county is concerned about septic system contamination, why is it not taking advantage of this well worked-out methodology, as recommended by the EPA, to arrive at scientific conclusions? (This testing is already being used in Southern California and Morro Bay.

Note: there has never been an infectious disease outbreak attributable to septic systems in Marin County history.

State

\$30 billion+ California septic bill in the works?

The state is working on state-wide septic regulations. Vested interests are apparently lobbying for statewide septic requirements similar to those now in force in Marin County. A scenario: Say over the course of time (remodels, sale of property, failing leachfields) 1 million homeowners* in Calif. have to upgrade to Marin standards. At \$30,000 apiece, we are talking 30 billion dollars! Can you believe this? Engineering fees on those systems alone will be over 5 billion dollars. Some perspective:

- the amount of money the state was ripped off for in the energy crisis in 2001: 9 billion dollars.
- the state school budget shortage, which is closing schools this year: 2.2 billion.

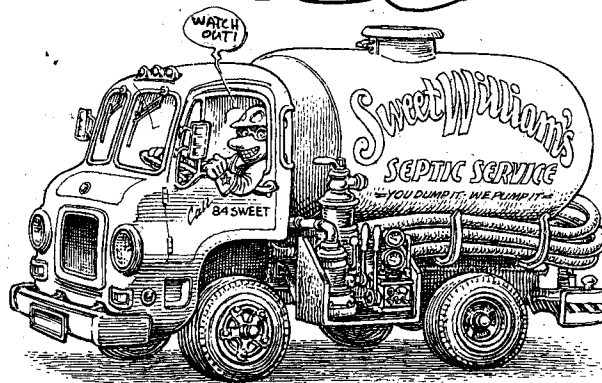
If these standards are applied in Trinity county, people will go bankrupt. If California goes the way of Marin, it will be a financial disaster for homeowners statewide.

Marin county ought to chuck the unscientific and high-tech requirements presently in force in favor of well-worked-out, ecologically sensitive, and practical system requirements.

* There are 28 million septic systems in the nation, and about 280 million people; California's population is 34 million, or about 12% of the total, so 1 million is a conservative estimate.

Where there's muck,
there's brass.

-Yorkshire saying



Local

County septic regs behind times

When I stated (many times) that septic systems are not in general a health hazard, I was given a number of papers by 3 different SeptTAC members, citing tests done that purported to show pollution of ground water from septic systems. These studies, such as Craun, 1986 a,b; Kaplan et al., 1982; Canter and Knox, 1984; and Voght 1961 are cited in the EPA paper *Septic Tank Siting to Minimize the Contamination of Ground Water by Microorganisms*, June 1987. Not only are these studies seriously outdated, but I could not track any of them down to find out who had sponsored them or other details. One bizarre test involved putting radioactive material in the tank and following its path through the ground water. HeLLLo! Another involved flushing live polio viruses down the toilet and detecting them in a well 30 feet away from the septic tank.

Swimming pools, wading pools, and hot tubs are prime causes in transmitting water-borne disease. The EPA is a lot more up-to-date these days and has published, among other things, studies utilizing Bacterial Source Tracking that have shown pollution formerly attributed to septic systems to be in fact from wildlife such as birds or raccoons and domestic pets such as dogs. Accurate testing at a series of beaches where there were water-borne disease outbreaks revealed that in almost every case there were diaper-wearing babies in the water (see Centers for Disease Control's Healthy Swimming website). And by the way I do not mean to minimize the hazard from septic systems to nearby wells. This should be clear to anyone: you don't shit in your drinking water.

-LLOYD KAHN

Centers for Disease Control releases new waterborne disease data

The Centers For Disease Control*, in its just-released document *Surveillance for Waterborne-Disease Outbreaks-United States, 1999-2000*, reports 39 disease outbreaks associated with drinking water in the United States. (An outbreak consists of 2 or more people getting the same disease.)

28 of the 39 cases were linked to groundwater sources, and: "... twenty-six of these 28 groundwater outbreaks had a well as the implicated water source; two were linked to a spring. The percentages of outbreaks associated with wells and springs were similar during this reporting period to the 1997-1998 period.

Two outbreaks were linked to chemical poisoning. This means that, other than for contaminated wells and chemical poisoning, there were 8 reported outbreaks attributable to groundwater in the entire US for the year.

None of the diseases was attributable to septic system sources. (In this 15,205 word document (<http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5108a1.htm>), a search for the word "septic" came up with nothing.

*CDC, located in Atlanta, Georgia, USA, is an agency of the Department of Health and Human Services, and is "... the nation's lead federal agency for ... developing and applying disease prevention and control, environmental health, and health promotion and education activities designed to improve the health of the people of the United States."

High tech systems do not control growth

I have heard the argument that even though homeowners that have had to deal with EHS are pretty unanimously opposed to current requirements and expense, they believe the same setup discourages building. On the contrary, a mound system can be used on land where a gravity system would not allow development. Maybe in the old days expense would curtail development, but these days it means that people of moderate income are



Coon Poop Culprit!

George Simmons, a scientist with Virginia Tech University recently spent two years trying to find the source of contamination to a shellfish bed on a Virginia Eastern Shore creek. It was assumed that faulty septic systems were the source of pollution.

When DNA testing was finally done, it was found that the in-stream *E. coli* came from deer and raccoons (mostly raccoons). When 180 raccoons were removed from the area adjacent to the wetlands, *E. coli* declined by 90-99%, and the tidal creeks were reopened to shellfishing.

"Scientists using DNA technology in an urban Seattle watershed with elevated *E. coli* levels had a similar surprise. Instead of linking the pollution to leaking sewer lines as was suspected, they found that animals, particularly household pets, were the culprit. The largest single source, they reported, resulted from people dumping pans of kitty litter on the ground and from wild cats."

Source:

<http://www.bayjournal.com/96-09/DNA.HTM>

Ducks and diapers

"Nonfreshwater sources were implicated in four bacterial recreational water outbreaks involving gastroenteritis. In March 1999, an outbreak of *Ca. jejuni* was associated with a private pool in Florida that did not have continuous chlorine disinfection and reportedly had ducks swimming in the pool. Outbreaks of *Shigella flexneri* and *Es. coli* O157:H7 (Missouri, September 2000 and Nebraska, June 1999) occurred among children using unchlorinated wading pools."

-*Surveillance for Waterborne-Disease Outbreaks - United States, 1999 - 2000*, Centers for Disease Control, Nov. 22, 2002

Oregon's onsite wastewater program sets model for public openness

Fully detailed on their website, Oregon's statewide septic program is far more sophisticated than what is presently going on in California in general and Marin in particular. For full details see the excellent Oregon Department of Environmental Quality website at: <http://www.deq.state.or.us/> A guide to the site:

- click "Water Quality" in the left column.
- click "On-site" in left column.
- you are now at the "Onsite Sewage Treatment" page.
- go down to "Oregon On-Site Wastewater System Field Performance Assessment" & click on "Executive Summary." Find the appendix in the PDF doc. See especially "Failure Definition and Criteria." *System failure is defined simply as "... seepage of effluent to ground surface or a straight-pipe discharge to the ground surface."* The following conditions are listed as NOT indicative of failure:

- odor alone
- green grass or lush vegetation
- wet or soggy soil
- ponding in trenches

Note that literally every aspect of on-site disposal is open to the public, from reports, studies, rules, and regulations, to minutes of committee meetings and links to universities and other sources of information.

Gut feeling: *E. coli* (coliform) is a type bacteria found in the guts (and wastes) of all warm-blooded animals and birds. There are thousands of different strains of *E. coli*, most harmless, but some that can cause sicknesses and even in rare cases, are deadly. DNA testing can tell if *e. coli* is of human or animal origin.

Now here's a real problem

The Centers for Disease Control reports there are 76 million cases of food contamination-caused ailments per year—ranging from the minor runs to a couple of hundred fatalities, many of them *e-coli*. Contrast this with the CDC reports on water borne diseases: 39 disease outbreaks affecting 2068 persons.



The CDC (www.cdc.gov) has a listing of information on a wide range of diseases: as their representative said, everything from Chlamydia to Cruise Ships. Their site on swimming is very educational as to risk. Their information shows that there are many health risks that should be examined (ebola...rapid spread of disease by airline travel, food contamination, drug resistant diseases etc that have orders of magnitude more risk than water borne diseases.

Conflict of interest up the kazoo

In the last decade or so, the septic system field here has been taken over by engineers and regulators who have formed a symbiotic relationship that:

1. Pays engineers excessive fees
2. Creates an ever-increasing regulatory bureaucracy
3. Costs homeowners major sums of money in both permit fees and construction costs

It works this way:

Engineers write the regulations that enact the ordinances that mandate the systems that require their services.

According to the Pt. Reyes Light editor Dave Mitchell (11/14/02): "The problem has never been that septic-system regulations here are too lenient. In fact, they are so unreasonably tough that environmental and political activists routinely break them.

County officials really do want to make the regulations less cnerous, eliminating the unreason-

able ones before approving new ones. A so-called "amnesty" program has been proposed, which sounds good until you realize it's based on misconceptions about septic-system failures.

Here is what is happening. EPA is now revising its guidelines for "decentralized wastewater management" and will make recommendations to the states and local governments. Two years ago, the California Legislature passed Assembly Bill 885, which orders state and local agencies to set minimal regulations for septic systems.

However, the State Water Board has not completed its proposed policies and under AB 885 does not have to for another year. County officials say they are developing new regulations ahead of the state's so they won't be forced by the State Water Resources Control Board to adopt standards that will be even stricter.

However, exactly the opposite may occur. AB 885 specifically allows local and regional governments to enact regulations that are more restrictive than the state's and would mean big bucks for the consultant industry. It was telling that when people in Bolinas asked Environmental Health Director Smith what AB 885 actually says, he referred them to a consultants' group, the California Onsite Wastewater Association, whose vice president for Northern California is none other than Norm Hantzche of Questa Engineering. Why am I not surprised?"



No SHIT!

According to the Center for Disease Control, in the last 10 years there is no evidence of outbreaks of infectious diseases in the US attributable to surfacing effluent from failing septic systems. All problems have come from contaminated wells, drinking water sources, or swimming.

Well well well

"Nine (52.9%) of 17 outbreaks associated with individual water systems occurred in groundwater systems. Eight of these groundwater systems were wells that were not treated routinely; one outbreak of giardiasis occurred when the filtration system for a well was inadvertently turned off. Five (31.3%) of the 16 outbreaks occurred when persons drank water not intended for direct consumption from irrigation systems or when they consumed surface water that had been ineffectively or improperly treated. One (6.3%) of the 16 outbreaks in a system occurred in a home where creek water on the property was directly consumed without treatment."

-Surveillance for Waterborne-Disease Outbreaks - United States, 1999 - 2000, Centers for Disease Control, Nov. 22, 2002

Extra! Extra!

What a setup for an investigative reporter! The role that engineers play in influencing county and local septic regulations, the county agencies that go along with these requirements, the huge amount of money involved. This dog-and-pony act is about to go state-wide and the public is by and large unaware of what's coming down the bend. This is a story!

Don't need a weatherman to tell which way the wind blows

"Learn from science that you must doubt the experts. As a matter of fact, I can also define science another way: Science is the belief in the ignorance of experts."

-Richard Feynman, Nobel Laureate Physicist, also famed for his exposure of the cause of NASA's Columbia Shuttle Disaster.

http://www.ptreyeslight.com/columns/sparsely/sparsely1114_02.html

Write your state and local govt. reps and tell them not to let lobby groups write the regs that implement Assembly Bill 885.

Small town disaster

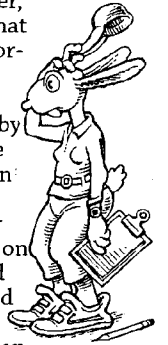
In the town of Monte Rio (600 inhabitants, on the Russian River, there is presently a plan afoot that is all too typical in at least California. In spite of there being no evidence of health problems, or documented pollution of water by septic systems, the townspeople are being forced into a 10 million dollar SEWER plan. For the discharge area, the plan calls for taking over a beautiful meadow on a ranch by eminent domain, and paying the owners, who have had the ranch for generations, a fraction of the real value. The plan is by Questa Engineers, of Pt. Richmond, California.

(The ranch owners point out that they applied to the county for a campground permit in the 60s and were turned down by on the basis of it being too wet!)

I went to a town meeting in Monte Rio in April, 2001, where just about everyone in the room was against the plan, and townspeople are still fighting the plan.

What's typical about this that could be a blueprint for other small towns? Bogus health hazard brings in expensive engineers who design expensive systems that are technological overkill and ecologically disruptive (as compared to gravity-fed systems). County officials cooperate with politicians and engineers and some carefully-chosen locals to craft the plan with no input from the general populace. When townspeople find out what's happening, the plan is so far along it's very difficult to stop.

Who pays? The homeowner and taxpayer.



No man, woman launderer, or laundresse shall dare to throw out the water or suds of fowle cloathes in open streets, nor within lesse than a quarter of one mile, dare to do the necessities of nature, since by these immodesties, the whole fort may bee choked and poisoned. . . .

-from the first sanitation law in Virginia



'And if I laugh at any mortal thing,
'Tis that I may not weep."

—Lord Byron

Editorial

I was discouraged and depressed at the last SepTAC meeting in Pt. Reyes Station. Sure, they'd let up on a few of the more absurd requirements (remodels, small additions), but the big kahuna out there, the \$25k system, was (is) still in force. High engineering fees, high permit fees, everybody happy!

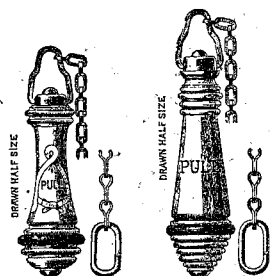
So I sort of retired from the septic field until I learned in the last few weeks of up-to-date scientific procedures and state-of-the-art state onsite wastewater requirements. It's a whole new ballgame, and thus this newsletter.

County septic regulations are a travesty. They have forced a working couple to build a 1/2 acre mound on their land, they have caused a single mom to take out a mortgage on her house to pay what totalled \$50k, they have desecrated the landscape of Marin with ugly mounds, as well as dredging gravel from the Russian River and hauling it here in big trucks. People need electricity for their systems to function. It goes on.

Can any homeowners help? What's going on ain't right. I can't put this much time into matters septic right now. If anyone can help produce future newsletters, or can organize homeowners, please email me: lloyd@shelterpub.com, or write at PO Box 279, Bolinas, CA 94924.

Here's to healthy microorganisms in your soil, as well as more sensible septic regulations in the future. Let's not take any shit!

—Lloyd Kahn



SepTAC redux

Enough time has passed for me to assess just what happened with SepTAC:

The good part is that some of the regulations regarding remodels and upgrades will presumably end up being more reasonable. As well, the county says it is not necessarily going to follow up on every crank citizen complaint. The bad part is that the requirements (crafted partially by county engineers) still require bloated, ecologically destructive and expensive systems.

Everything's a learning experience. In retrospect, when we first convened, we should have identified the problem. Had we done a good job of research, we would have found out no health problem or health hazard in the county attributable to failing septic systems. This would have completely changed the nature and substance of our work.

I suggest that SepTAC reconvene to consider all the new info that is now available. The job is not finished.



ONLINE RESOURCES

Bacterial Source Tracking:
www.epa.gov/owm/mtb/bacsorkt.pdf

The Centers for Disease Control and Prevention:
www.cdc.gov

An intelligent state program:
<http://www.deq.state.or.us/>

For criticism of mounds, discussion of additives. Dr. Timothy Winneberger's contention that septic systems are safe, the latest in good septic technology:
http://www.shelterpub.com/_shelter/ongoing_info.html

For Lloyd Kahn's rants to the SepTAC newsgroup over the course of a year, as well as the grassroots effort in Monte Rio to stop the pork barrel sewage project:
www.shelterpub.com/_sepgaz

Septic Systems Can Pollute

There are certain cases where septic systems can cause pollution and or health problems:

- if a septic system is too close to a well
- if there is direct discharge from a home into a body of water
- or, as Timothy Winneberger says, "If someone in the house has typhoid, the system is not functioning and typhoid surfaces and a baby crawls along the ground and drinks the water, the baby will get typhoid—but what area the odds of this happening?"

The point is, septic systems can pollute, but in the vast majority of cases, they do a good job of diminishing pathogens and protecting public health. Health officials should use Bacterial Source Tracking to nail down genuine septic failures and not assume that homeowners are responsible if any *e. coli* shows up. Nor should they apply absurd and non-scientific standards to all systems in the county.

West Virginia reports DNA testing saves farms

"Our main goal is to identify the problem first, then create a program to rehabilitate the polluter," said West Virginia Commissioner of Agriculture Gus R. Douglass. "We criticized TMDLs because of the lack of data collected prior to the determination of rivers and streams. To react without good analytical data unnecessarily harms our economy, while allowing the actual polluter to continue harming our rivers and streams."

"We must be certain of where the waste is originating before we begin to destroy our family farms that are located along these waterways," said Commissioner Douglass. "We've had great success by working with farmers and implementing voluntary, incentive based programs. More than \$9 million of USDA funding, combined with \$2 million from the Governor and West Virginia Legislature, has been spent implementing Best Management Practices (BMPs) to ensure that agriculture protects water. By identifying the sources through analytical means (DNA), we can target our testing to keep rivers and streams within acceptable limits and maintain farming in these areas."

From West Virginia Dept. of Agriculture website:

http://www.state.wv.us/agriculture/divisions/news_releases/2000/08x10x00.html

GRAVITY RULES!

THERE ARE TWO BRILLIANT THINGS ABOUT A PROPERLY FUNCTIONING GRAVITY-FED SEPTIC SYSTEM:

- THE POWER IS GRAVITY, THE EARTH'S MAGNETIC FORCE — PULLING WATER AND WASTES DOWNWARD. NO PUMPS, NO ELECTRICITY.
- THE CLEANSING AGENT IS THE EARTH, WHERE MICROORGANISMS, NATURALLY PRESENT IN THE SOIL FILTER, FEED ON AND PURIFY SEPTIC TANK EFFLUENT, INCLUDING DISEASE-CAUSING ORGANISMS.

IT IS AN ELEGANT DESIGN, WORKING SILENTLY UNDERGROUND, AND REQUIRES ONLY A MINIMUM OF MAINTENANCE TO KEEP IT FUNCTIONING. IT IS PRACTICAL, FUNCTIONAL, AND ECOLOGICAL. IT'S WORTH KNOWING HOW TO BE AN INTELLIGENT STEWARD OF THIS LIVING SYSTEM.

