



8/12/11

Comments on the Septic Tank Ban in Yucca Valley, Ca.

First off, I would like to say that there is little doubt that septage from our septic tanks is infiltrating the aquifer in our area. The 2003 USGS report states it. The Peer Reviews back the information from the report. However, there are many things to consider before making this Septic Tank Ban permanent.

The USGS report stated that the increased nitrates are probably from septic systems. They did not say that the systems were the CAUSE of them. In fact, they pointed out that the spike in nitrate levels were experienced **AFTER** Hi-Desert Water District began the artificial recharge program in 1995. The peer review by Dr. Boehm repeatedly refers to that fact. (*1.)

The artificial recharge program is CREATING the problem of higher nitrate levels in our groundwater- the septic tanks in our area are merely providing the material.

While the USGS indicated that they believe that groundwater levels had risen to a point where they contacted the vados zone and entrained the septage, they did not seem to consider that the cause may be from the water mounding during recharge. This would cause higher nitrate levels in isolated areas of the aquifer (Noted by Dr. Boehm and Dr. Hunt in Peer reviews). This should be a temporary problem. The problem would resolve itself in a short time if the recharge rate were to reduced and stopped completely before the ground water level **throughout** the aquifer is brought into contact with the vados zone.

The USGS also did not appear to consider the fact that, when allowed to percolate through the soil, water will naturally wash-out any nitrates in the soil, causing them to enter the aquifer. This is also a temporary problem. Once the nitrates are flushed out, the levels should return to initial, pre-recharge, levels.

Dr. Boehm refers to the above-mentioned issue. (*2)

Dr. Hunt speaks of the process of de-nitrification and points out that the artificial recharge program is the actual problem- NOT our septic systems. (*3)

Dr. Hunt also indicates that the levels of nitrates in our groundwater have leveled-off at lower levels than "drinking water standards." (*4)

Dr. Hunt also discusses the issue of septage being mixed with the "SWP" water and points out that there appears to be NO mixing. (*5) This indicates to me that the artificial recharge program is causing our lower, more pristine, waters to become contaminated, as well as the higher levels of our water table.

Dr. Hunt finishes his letter by discussing the planned wastewater treatment facility (last 2 sentences), "Since the effluent (of the new facility) will be infiltrated on site, the groundwater basin will again be subject to increased nutrient loading along with the accumulation of salts within the aquifer. While the sewer collection system and treatment plant will be an advance over *poorly (italics added)* functioning

diffuse septic system, will the solution being proposed ultimately improve the nitrate loading to the groundwater basin?

The discussions about how the **raised water levels** are causing the problem should have been caught and dealt with on their own merit- a long time ago.

Dr. Hunt's last question should cause everyone to pause and think at this time. Granted, there ARE septic systems in our area that need to be serviced or replaced. But, does it justify BANNING all systems in Yucca Valley- even in 'Phase 1'? Or should we be looking for more reasonable alternatives?

To strengthen my argument against the ban on septic systems in Yucca Valley:

The USGS has taken limited samples in our area. They point to the fact that the samples were done "in proximity to the percolation ponds." The USGS has also pointed out that, after the initial samples were taken, additional samples showed that nitrate levels had dropped to within the allowable/safe levels.

I am not aware of any continued monitoring or reports of ground water quality by the USGS. However, Hi-Desert Water District has published its annual groundwater bulletin which proclaims that the water in our area is well with-in EPA limits for all toxic substances. This would indicate that the nitrate problem is NOT an on-going issue.

The Peer reviews state that the higher nitrate levels are the result of the **artificial recharge program**. Additionally, Hi-Desert Water District has plans to "Recycle" the treated water. Their plans include **another** recharge pond where they will allow the reclaimed waste-water to percolate back into the aquifer (See Dr. Hunt's question above). The belief of Hi-Desert Water District is that any contaminants will be naturally filtered out before the treated water reaches the aquifer. This would help to create additional problems by washing more contaminants from the soil into the groundwater (again- See Dr. Hunt's question). **My Question:** Isn't that what is supposed to be happening with our septic systems now?

By placing a ban on septic systems in our area, you are not stopping the problem (IE- higher nitrate levels in the aquifer). The nitrates and contaminants that are in our soils would still be there- waiting for Hi-Desert Water District to raise the water level in the aquifer higher and entrain them also.

You would only be creating a financial nightmare for the local citizens- and a financial boon for the local water company and real estate speculators!

The Hi-Desert Water District, and Colorado Basin Regional Water Board, uses the town of Los Osos, Ca. as an example of why we 'need' a sewer system and a waste water treatment plant. They focus on the costs to the town's people through fines, etc. if we don't comply with their orders. While Los Osos is a good example of a bad situation, the similarity to Yucca Valley ends with the fight against the sewer system. Los Osos and Yucca Valley are completely dissimilar in most of the important ways.

1. Los Osos is in an ecologically sensitive area. Yucca Valley is not.

2. Los Osos' groundwater levels are much higher than Yucca Valley's. Yucca Valley's water table WAS safely separated from the vados zone until Hi-Desert Water District began the recharge program.
3. Los Osos' groundwater flows to a bay (Morro Bay) and local streams. Yucca Valley is in the desert. Our aquifer is more like a storage tank. Our water does not flow into any other underground water system. Therefore, there is little possibility that it will involve any other water sources for the rest of the State.
4. Los Osos is an agricultural area. Besides having septic systems contaminating the ground water, farmers are using fertilizers which contain higher levels of nitrates on their crops. These nitrates, added to the septage from Los Osos' septic systems and higher ground water levels, push the nitrate levels in that area beyond safe limits. Yucca Valley is NOT an agricultural area.
5. Los Osos experiences more rain, resulting in a higher, natural recharge rate. Yucca Valley has very little rain, hence the perceived need for an artificial recharge program

A more-appropriate comparison to Yucca Valley's predicament would be the town of Paradise, Ca. They experienced growth (unlike Yucca Valley's 1% in the last 10 or so years) which caused potential problems with their groundwater supply. They were faced with the possible need for a sewer system and wastewater reclamation plant. However, they used reason to mitigate the problem. Package plants were built to handle the excess waste which was produced by certain multi-family housing units and businesses. Previously existing septic systems are still allowed.

Zoning was reconsidered and fewer homes were built on one lot. The problem was resolved to everyone's satisfaction without undue burden on the local citizens.

What is a more reasonable and intelligent solution to Yucca Valley's water problem?

1. I suggested to Mr. Rokke at our Regional Water Board, and I will suggest to you, that our septic systems could be required to be serviced every 3-5 years as recommended by the USEPA. When serviced, the servicing company could certify them as safely operated. Certification would be sent to the Regional Water Board or other regulating agency (similar to the Air Quality Management District's approach to air quality issues). If the systems were not serviced and certified, the owner could be fined or made to replace the system- at the owner's expense. This solution would reduce the financial burden which is being forced on our entire community and place it where it belongs- on the polluters.
2. Businesses with higher waste outputs could be required to build 'package' plants, thus minimizing the costs to **individual home-owners**.
3. If Hi-Desert Water District deems it necessary to continue with the artificial recharge program, they should inject the water directly into the aquifer, rather than allow it to percolate into the soil. This would reduce the amount of nitrates and other pollutants which would be washed out of the soil and into the groundwater. It would also reduce the amount of water lost to evaporation. By

injecting the water, we would experience additional savings by NOT replacing the evaporated “State” water with **more** expensive “State” water.

4. Hi-Desert Water District would need to monitor the water level in the aquifer to insure that it does not contact the vados zone and entrain more septage, causing more of the same problem.
5. Limit building to the recommended ‘1 single-family dwelling per half acre of property’ (USEPA recommendation).

Our town council has, for some unknown reason, ignored the USEPA recommendation. They have permitted over-building in our area. There are solutions which would fix that problem without making every home owner pay for THEIR mistakes. Our Regional Water Board, who is supposed to be overseeing and regulating the septic tanks, has allowed it! This needs to be stopped!

Summation: As you can guess, I am against the ban on our septic tanks. I believe that I have shown that there is considerable evidence that suggests that there are alternatives to the ban. If some, or all, of the above suggestions are put in place, we (the people of Yucca Valley):

1. will experience the maximum benefit of our water,
2. will not unreasonable affect present and anticipated beneficial uses of waters and,
3. will not create any situations that result in water quality less than that prescribed in policies (e.g. violation of any WQO).

I also, do not believe for one minute that any of you will consider my arguments and relent from banning the septic systems in our area. After-all, it has been stated at our meeting with the Regional Water Board in March or April, 2010, by one of your members that “The State is 100% behind the Regional Water Board’s decision.” I believe that the “Good Ol’ Boys Club” in our area has only 1 item on its agenda- “Find a way to make more money for their friends.” I consider this request for comments to be another “dog-and-pony show” to meet your legal requirements, and nothing more. **Please prove me wrong.**

Please have the courtesy to respond to my comments directly to me at: claude@claudescave.com

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***Footnotes:**

(1) Dr. Alexandria Boehm, Letter to Ms. Stormo, 9 September 2010, Response 1, paragraphs #1:

“Spikes in nitrates are evident in the portions of the aquifer where water levels have risen due to artificial recharge. Spikes are coincident with artificial recharge events.” And paragraph #2: **“The available data are sufficient to logically conclude that increases in nitrate were concurrent with the water level increase due to recharge in *portions* of the aquifer.”**

(2) Dr. Alexandria Boehm, Letter to Ms. Stormo, 9 September 2010, Response 4, paragraph #1: (reference to conceptual models used by USGS), “They provide sufficient evidence and logic to conclude that **the rising groundwater levels due to artificial recharge** have entrained nitrate rich septage in the unsaturated zone.” She goes on (same paragraph) to say: “They show assuming reasonable vertical migration speeds of 0.07 to 1 ft/d, it would take septage 1.2 to 17 years to reach the aquifer. However, high nitrate was not seen in the wells in the subbasin until well after this, which suggests that **vertical migration** of the septage was not a cause of the high nitrate levels. **The authors go on to show that the given volume of pore space in the unsaturated zone, the septage discharge to the subbasin could be held up in the unsaturated zone.**”

(3) Dr. James R. Hunt, letter to Ms. Stormo, October 31, 2010, Response 4: “When the artificial recharge was initiated, this possible soil-aquifer treatment system could have been arrested by water flooding.”

(4) Dr. James R. Hunt, letter to Ms. Stormo, October 31, 2010, Response #5 (Groundwater data from 2002-2010): “Appendix D of the staff report with recent nitrate and groundwater elevation data demonstrate continued high levels of nitrate in the groundwater even though they do not exceed drinking water standards. Levels reported are in the range of 10 to 30 mg/L and that level might represent some steady state value of septic tank discharges and groundwater recharge... ”

(5) Dr. James R. Hunt, letter to Ms. Stormo, October 31, 2010, Response 4: “In the USGS 2003 report, Figure 15 (page 42) shows the nitrate concentrations increase over time in the deepest groundwater sampling interval (YV2-570) **over the period of artificial recharge** with SWP water. Additionally, groundwater from this deepest sample with the highest nitrate concentrations ... that indicates there has been no dilution of that water with SWP water.”