

## Testimony Received by E-mail June 6, 2014 from Dean Effler MD, FAAP

My name is Dean Effler. I am a pediatrician who has served thirty five years in the Indian Health Service at multiple reservation sites over our country. I have been serving on the Yakama reservation since 1992. I am currently retired and work part time at the Indian Health Service facility in Toppenish. I began working with Friends of Toppenish Creek after a friend made me aware of the water and air quality problems that were impacting the residents of the Lower Yakima Valley. At first I became involved out of a friendship and a concern for the health and welfare of my patients. Then I was invited on a "Poop Tour". When I was able to see first hand the environmental damage that is happening around the Confined Animal Feeding Operations or CAFOs, honestly I became angry and wanted to do more. When you experience with all your senses the acres and acres of piled up manure, large manure lagoons, manure slurries being aerosolized by impact sprayers, and thick smelly sludge being spread out on fields rather than injected in the ground it is more than you can take. The smells are acid, pungent, and painful. Many of these dairies are not being good neighbors.

As a physician and pediatrician I am concerned about the water quality of wells in the Yakima Valley and the possible effects on children. Some of us will talk about the bacterial contamination of water supplies. I will talk about nitrate pollution.

Nitrate toxicity is manifest as a disease called methemoglobinemia. Infants under six months of age are most at risk because of their immature enzyme systems. If exposed to excessive nitrates and nitrites the oxygen carrying capacity of the blood is impaired resulting in a bluish discoloration of the skin, rapid breathing, weakness, sleepiness, and in severe and rare situations, death. Excessive consumption in pregnancy has also been linked to birth defects and miscarriages. The EPA recommends using bottled water if the nitrate concentration gets above 10mg/L.

What we know:

- a. 20% of households with well water in sections of the Yakima Valley around CAFOs and agricultural businesses have nitrate levels over 10. Some wells have levels greater than 100. One had a level of 190.
- b. In a recent survey 69% of the local population are aware of health risks
- c. Over 50% of those surveyed have had their water tested at least once. By the way, in the high risk areas once is not enough testing. It should be done at least twice a year. The approximate cost for the home owner is \$45 for nitrate testing and \$45 for bacterial testing.
- d. The contributing factors to the nitrate contamination are as follows:

Malfunctioning septic systems  
Broken well casings  
Overuse of chemical fertilizers  
Over production, over application, and massive storage of animal manure and urine.

The recent EPA study found that in the contaminated wells there were also antibiotics and hormones which leads the EPA to believe that the CAFOs are likely a major contributor to the water problem. Some of these wells were over 200 feet deep into the basalt aquifer. Manure if over applied and stored in large quantities cannot be considered a harmless, natural substance. It leaches into the ground water and contaminates the air.

What we do not know:

- a. The number of families who are using contaminated household well water to feed their young infants.
- b. The number of infants that have been harmed by nitrate toxicity.

The fact that we cannot point to numbers of infants being harmed by the well water is brought up by the dairy industry as a reason that the effects of nitrate pollution is over blown. I personally believe there is another reason why we might not be seeing ill infants. Look at the map in your hands. Wells are clearly contaminated all across the lower valley. I believe there is a strong possibility that the medical community is not looking hard enough for the effects of nitrates. I have informally asked physician friends and colleagues if they routinely ask about well water consumption when a child has a respiratory problem with low oxygen levels and the answer is no. Therefore a sick infant with low oxygen levels would unlikely be tested for methemoglobinemia. Does a child that has moderate to severe dehydration and is drinking well water get checked for methemoglobinemia? The answer is no. It is possible that the medical community is missing the diagnosis. Obviously this is conjecture and I do not know for sure.

What the state can do:

- a. Because of the high risk well water in the Yakima Valley and in other agricultural counties the state Health Department should make methemoglobinemia a mandatory reportable disease.
- b. The state Health Department should have a focused educational efforts to medical providers to encourage looking for effects of nitrate exposure in sick infants. Specifically they should be encouraged to look for methemoglobinemia in sick infants with respiratory problems and low oxygen levels and sick infants with moderate to severe dehydration when these infants are drinking well water in high risk areas.
- c. The Health Department should work with obstetric hospitals in the high risk areas to provide information about risks of nitrates to new mothers.
- d. The Health Department should work with obstetric providers in the state to help them educate pregnant women about the risks of drinking contaminated water in pregnancy.

At this point I will admit that I am getting out of my field of expertise. However after experiencing the local environmental effects of CAFOs first hand I would like to make some further non-medical suggestions:

- a. Pass legislation to limit the number of cows per acre of field. Cows that thrive in pasture do not leave the same environmental impact that is caused by CAFOs
- b. Mandate that state agencies enforce the regulations that fields cannot experience repeated application of manure when the nutrient levels in the soil are already adequate for plant growth. When manures are over-applied subsequent rain and irrigation drive the pollutants into the ground water rather than being available for use for growing plants. Current agricultural Nutrient Management Plans are not enforceable. They are polite suggestions.
- c. Tax the CAFOs and use the funds to support the purchasing of bottled water, nitrate testing, and drilling of new wells for the neighbors whose wells are contaminated. This is only a fair return to the neighbors who are innocent in this whole affair.
- d. Ban the overhead spraying of manure liquids and irrigation of fields on which manure is applied during the winter. This process only drives the pollutants into the ground water at a time when plants are not growing and cannot use the nutrients. When applied on frozen ground it only promotes run off on to adjacent lands and into waterways.
- e. Require substantial barrier liners in manure lagoons. Require drainage and inspection of manure lagoons yearly to identify and fix leaks in the liners.
- f. Provide painful fines to polluters who allow manure to enter our waterways including our irrigation ditches. These fines cannot go back to the dairy industry but rather to the neighbors who need to buy bottled water, get nitrate testing of their water and drill new wells.
- g. Ban the application of manure to fields that are not going to be used for agriculture in the next year.

This issue is not just an agricultural/environmental issue. It is also a moral issue. Are we going to allow practices to continue that impact the quality of life, health, and land values of innocent citizens who live in proximity to these industrial dairies. I hope the state government will fight for these innocent, powerless people.

Finally I invite you and part of your staff to join us on a “poop tour” of the lower Yakima Valley. Your eyes will be opened and if it is on the right day they will hurt.