KANSAS RURAL WATER association
Quality water, quality life

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February 5, 2010

Greg Goetz
City of Grinnell
413 South Adams
Grinnell, KS 67738

Dear Greg,

As you requested, here are some figures to assist you with decisions about your wastewater lagoon system. I am not an engineer and the figures are from those you provided me.

Your concern, as I understand, is that you believe seismic testing for oil exploration in your area may have caused a leak in the lagoons' seal. This is possible but I am not sure how it could be proven. You may want to try to reseal the cells by use of a clay-type material. Another option is to line the cell with an impervious liner that does not allow seepage.

The two lagoons cover 4.6 acres; one is 1.94 acres and the other is 2.62 acres. The population is approximately 275 people. I used an average of 700,000 gallons per month from January usage. That is 83 gallons per person per day. Annually, the amount of wastewater is 8,400,000 gallons. A usage rate of 100 gallons per person per year would be total 10,074,000 gallons.

You commented that the city is using only the smaller cell of 1.9 acres, with total capacity of 3,095,584 gallons. An allowance of ¼-inch of seepage per day or 4,707,478 gallons annually is reasonable. I also used an evaporation rate of 38 inches per year at 3,724,711 gallons. Total seepage and evaporation from this cell then is 8,432,169 gallons.

The difference between total gallons 8,400,000 used and seepage and evaporation rate of 8,432,169 gallons is 32,189 gallons or a loss in excess of the amount of wastewater entering the system. A higher usage, or less evaporation and seepage, or a combination of those factors, would help retain more wastewater in the cell. With a 100 g.p.d. usage, there would be about 2.5 feet of water in the small cell. Again if the seepage or evaporation may vary.

I hope this information will help the city make an informed decision. The city may want to hire an engineer to determine options, such as reducing the size of the cell. An engineer would not be needed, as I understand, to reseal the cell with clay type materials, but may be to install a liner or a project to reduce the cell size. I suggest you contact Norb Windholz at KDHE in Hays for his opinion and input.

Please call if you have any questions. KRWA appreciates the opportunity to provide assistance to your system and your support as members.

Sincerely,

Charlie Schwindamann
Wastewater Tech

CS: ejr
C: Robert Losey, Mayor
Norb Windholz, KDHE, Hays