



P.O. Box 226 • Seneca, KS 66538 • 785/336-3760
FAX 785/336-2751 • <http://www.krwa.net>

July 26, 2010

James Rezabek
City of Lucas
PO Box 308, 201 Main Street
Lucas, KS 67648

Dear James;

As requested, KRWA performed a sludge profile of your wastewater stabilization ponds on July 20th. The enclosed report summarizes that work.

We took 32 measurements in the East (primary) cell, Cell #1. The average sludge depth in this cell was 10.88 inches. This cell was being operated at a depth of 5.5 feet. The loss of capacity due to sludge accumulation is 16.48%. The depth of heavy sludge is about 6 inches.

Twenty-four measurements were taken in the West cell, Cell #2. The average sludge depth in this cell is 8.5 inches, with about 4 inches of heavy sludge. This cell was also being operated a depth of 5.5 feet. Loss of capacity in this cell is 12.87 percent.

I do not believe removal is warranted given the limited amount of heavy sludge in the lagoons. Sludge removal is usually only necessary when a system fails to meet discharge permit limits or when the system has constant odor problems. The odors will usually only occur when approximately 25 percent of lagoon capacity is lost due to sludge accumulation. Other factors include system design and capacity. Sludge removal project can be a significant expense and should be budgeted for.

The wastewater system is not permitted to discharge, but irrigation could be used, eliminating any need to consider other discharge. It appears there may be farm ground to the west of the lagoons that may be available for irrigation. KDHE would need to approve of such a request.

When a non-discharging system is made into a discharging system, piping usually needs to be changed to reduce "short-circuiting". Short-circuiting is when the inlet pipes and outlet pipes of a system are too close in proximity and proper detention time of at least 120 days does not take place. A 2-cell, non-discharging system usually has a way for non-treated, influent wastewater to enter the second or final cell of the system. Kansas Dept. of Health and Environment does not allow for raw wastewater from customers to enter a cell that will be discharging to a receiving stream. A significant amount of piping will need to be changed to meet these requirements. There are a couple options you should be aware of to determine the least expensive for your system. The first would be as mentioned above, changing the piping to reduce short circuiting and not allowing raw influent to enter the discharging cell. This would include adding a discharge pipe to a receiving stream. This option would allow for a

controlled discharge where you may only discharge a couple times a year. This may be accomplished by raising the level of the cells to about six feet then slowly discharging to a depth of four feet over a period of a few weeks to a month or more. This may allow longer detention time than a continuous discharge. This may also assist in meeting any new discharge permit requirements that could come in the future.

Another option would be to add a third cell to keep the system as non- discharging, making it large enough to hold waste and evaporate it. This would reduce the need to sample and meet discharge permit requirements. Either of these options will be expensive and your council should review all options for the best informed decision before design is started.

Please call if KRWA can be of any further help or provide additional information.

Sincerely,

Charlie Schwindamann
Wastewater Tech

CS: ejr

Enclosure

C: Jennifer Bates, Mayor

Julie Bretz, City Clerk

Norbert Windolz, KDHE, Hays

Sludge Profile

City of Lucas

July 20, 2010

Top is
North

Cell #2

Cell #1

8"	8"	8"	8"	10"	8"	8"	6"	12"	12"	12"	12"	14"	12"	10"	10"	10"	10"	10"
8"	8"	10"	8"	10"	8"	8"	6"	10"	10"	14"	20"	10"	10"	8"	8"	8"	10"	
8"	12"	12"	10"	10"	8"	6"	8"	10"	10"	10"	12"	14"	10"	12"	12"	8"	8"	10"

Average sludge depth: 8.5 inches

Average sludge depth: 10.88 inches

Cell operating depth: 5.5 feet

Cell operating depth: 5.5 feet