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June 22, 2009

Kevin McCurley
City of Argonia
PO Box 35
Argonia, KS 67004

Dear Kevin;

As you requested, I conducted a sludge profile of the city's wastewater stabilization ponds on June 18, 2009. The enclosed report summarizes that work.

We took 36 measurements in the west (primary) cell. The average sludge depth in this cell was 9.33 inches. This cell was being operated at a depth of 5.5 feet. The loss of capacity due to sludge accumulation is 14.14 percent. The depth of heavy sludge is about 4 to 6 inches.

Twenty-four measurements were taken in the east cell. The average sludge depth in this cell is 4.92 inches, with only about two inches of heavy sludge. This cell was being operated a depth of 4 feet. Loss of capacity in this cell is 10.25 percent. This loss of capacity would decrease to 8.2% if operated at a depth of 5 feet.

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.

I believe, from reviewing the discharge reports, that the problem with meeting your discharge permit requirements is too much inflow and infiltration, commonly called I & I. I believe this due to some of your influent samples being in the 30 mg/l range. Most influent wastewater is around 150 to 250 mg/l. The low numbers on your influent samples are most likely caused by too much I & I causing dilution, resulting in incomplete treatment.

This incomplete treatment due to excessive I&I is called short-circuiting. Waste flows through the wastewater stabilization ponds faster than the waste can be treated. Normal flow through your system should be 150 days. During rain events this is most likely a significantly shortened time frame. I recommend that you keep daily records of the lift station pump hours and rain events.

KRWA has not conducted a smoke testing of the system.

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

Sincerely,

Charlie Schwindamann
Wastewater Tech

CS: ejr
Enclosure
C: Alan Brundage, Mayor
John Goetz,, KDHE, Wichita

TOP IS NORTH

10"	8"	8"	4"	2"
12"	10"	8"	4"	4"
10"	8"	10"	6"	4"
10"	8"	10"	6"	6"
10"	10"	10"	6"	6"
8"	8"	10"	6"	6"
10"	8"	10"	4"	6"
8"	8"	10"	4"	6"
10"	8"	10"	4"	8"
12"	8"	8"	4"	6"
12"	8"	10"	4"	4"
12"	6"	10"	4"	4"

WEST CELL: 5.5' OPERATING DEPTH

AVERAGE SLUDGE DEPTH: 9.33 "

EAST CELL: 4' OPERATING DEPTH

AVERAGE SLUDGE DEPTH: 4.92"