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July 5, 2010

Roy Hockett
City of Natoma
PO Box 350
Natoma, KS 67651

Dear Roy;

As you requested, I conducted a sludge profile of your wastewater stabilization ponds on June 30, 2010. A report is enclosed.

We took 30 measurements in the Cell A (north). The average sludge depth in this cell was 13.73 inches. This cell was being operated at a depth of 5 feet. The loss of capacity due to sludge accumulation is 22.88 percent. The depth of heavy sludge averaged about 8 inches, not including the heavy sludge depths near the inlet pipe.

We took 23 measurements in Cell B. The average sludge depth in this cell was 7.91 inches, with 6 inches of heavy sludge. This cell was being operated at a depth of 5 feet. The loss of capacity in this cell was 13.18 percent.

Sludge removal may be warranted in the next few years. 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 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 can be a significant expense and should be budgeted for.

In our discussion I found that the system was being operated in parallel; flow had been split between Cell A and B and then flowed into Cell C. There are two influent pipes into Cell B. The design of the system allowed for a valve to be open so the flow into Cell B could short circuit into Cell C. I have never before seen a design such as you have in this regard. The system had been operated this way for an unknown period. You stated that you changed this after it discovering it six weeks or less ago. The flow no longer short-circuits between Cell B and Cell C. This has made for longer, but an uncalculated increase in detention time. I believe that the short-circuiting in combination, with the sludge accumulation in Cell A, is the system's main problem with the discharge permit violations on being over the limits at times in recent years.

Your system's daily flow, using pump hours and lift station capacity, is approximately 22,950 gallons based on hour readings from May 14 to June 15. As a result, the system should have more than 244 days of detention time. Design capacity of your system is 54,000 gpd or 130 days detention time. KDHE's minimum design capacity is 120 days detention time. Keeping these flow records on a daily basis is a great value for determining potential design and operational problems that may occur.

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

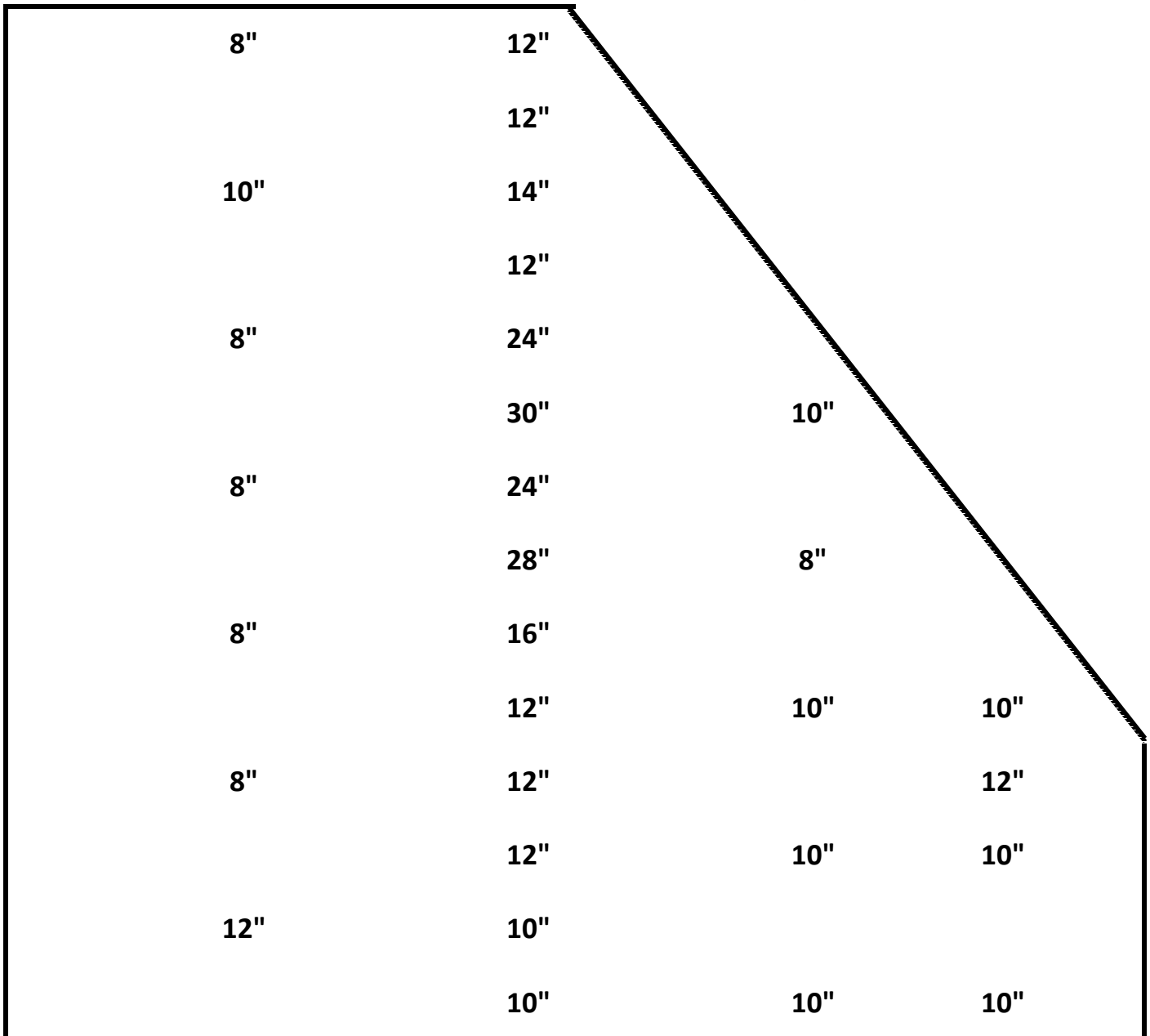
Sincerely,

Charlie Schwindamann
Wastewater Tech

CS: ejr
Enclosure
C: Wendella Axelson, Mayor
Linda Sharits, City Clerk
Norb Windholz, KDHE, Hays
Gary Smith, USDA Rural Development

CELL A

Top is North



Cell B

8"	8"	10"	10"	12"	8"	8"	6"	8"	8"	10"	
8"	8"	8"	8"	8"	8"	6"	6"	6"	6"	8"	6"