Commonwealth of Pennsylvania

Department of ***E***nvironmental ***P***rotection

Bureau of Point and Non-Point Source Management

November 2015 (Version 1.1)

Backwoods Township Wastewater Treatment Facility Exercise

The following is an exercise in which you are scheduled to take over as the new facility certified operator. You will have one person assisting you with operations, his name is Mr. Newop. Mr. Newop IS NOT a certified operator. The previous certified operator (Mr. Oldop) is scheduled to retire soon and does not have time to visit the treatment plant. This scenario puts you two weeks into your new position for Backwoods Township. By the way Mr. Oldop has been retained by the Township as a consultant on an as needed basis The following is a summary of your discoveries. Based on this, please answer the following and be prepared to present your findings.;

1. Did you find any problems with the operation as conducted by Mr. Oldop (and Mr. Newop as directed)? If Yes please list

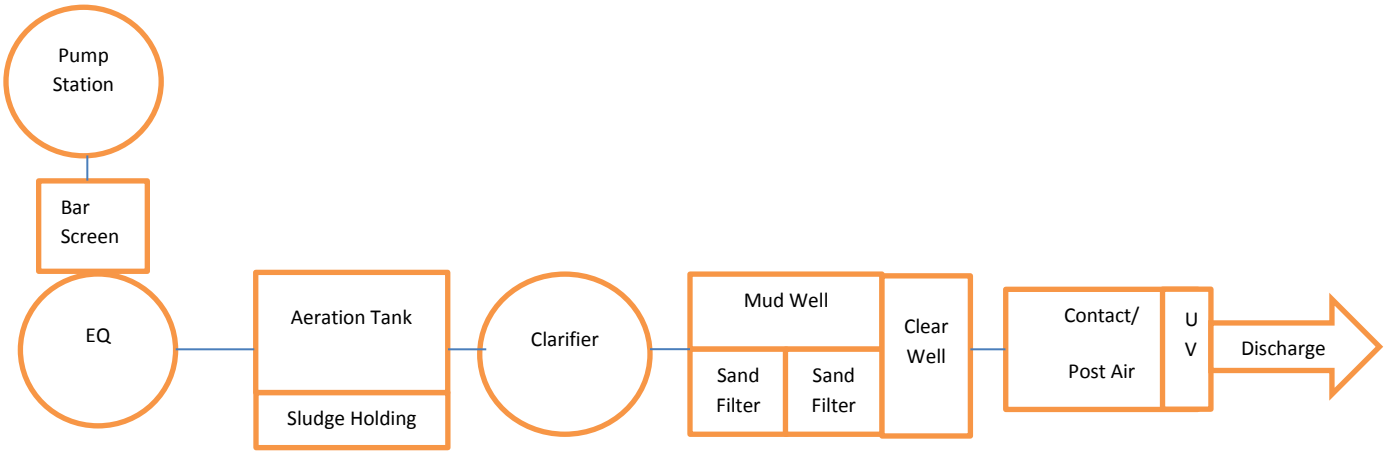
2. Based on your findings, what (if any) corrective actions would you take?

3. Who (if anyone) would you disclose the information you discovered? How would you do so?

4. What additional information (if any) would you want to collect?

Report Introduction:

Backwoods Township Municipal Authority (Authority) owns, operates, and maintains a sewage treatment plant (treatment plant) and collection system that serves the Whackerville area under National Pollutant Discharge Elimination System (NPDES) Permit No. PA00XYZ (Whackerville STP). The treatment plant is located in Backwoods Township, Back County and serves a primarily residential area consisting of slightly more than 100 homes with an estimated population of approximately 225 people. The treatment plant has an equalization basin (EQ tank) followed by an extended aeration process with sand filters and ultra violet (UV) disinfection. The treatment plant discharges into a High Quality – Cold Water Fishery (CWF), unnamed tributary of Beer Run.



The Authority has retained you as the only certified operator and indicated that there is a noncertified operator (Mr. Newop, who has operated the treatment plant for 3 years under the direction of Mr. Oldop, retired) that will remain on to assist in the operation of the treatment plant.

During your first two weeks of employment you have decided that you would observe Mr. Newop perform his daily activities as previously directed by Mr. Oldop, conduct a thorough inspection of the collection system, pump station and treatment plant, review the Chapter 94 reports, DMR's, sludge hauling records, and the written guidance previously provided to Mr. Newop.

Completion of these activities revealed the following information:

- DMR's show chronic effluent discharge exceedances.

- Mr. Oldop provided little oversight or direction in the proper operation and maintenance of the treatment plant (see figure 1below).

- Mr. Newop has been left, on his own, to make process control decisions with little or no oversight.

- There is no process control plan or preventative maintenance plan for this treatment plant.

- Chapter 94 reports show:
    - Influent 2004-2006 flows average 0.0175 MGD, 2007 - 2011 flows drop to an average of 0.0085 MGD
    - Influent BOD, TSS and HN_3N loadings have also dropped by approximately 50% over the same time period.

- Mr. Newop collects a beaker of tap water and, not using a proper pH and D.O. meter, takes readings and records a pH of 6.0 s.u. and D.O. of 7.0 mg/l.

- DMR's always show 7.0 D.O. and 6.0 or 6.1 pH value.

- Mr. Newop places chlorine tablets in the effluent near the UV disinfection system an hour before collecting fecal coliform samples.

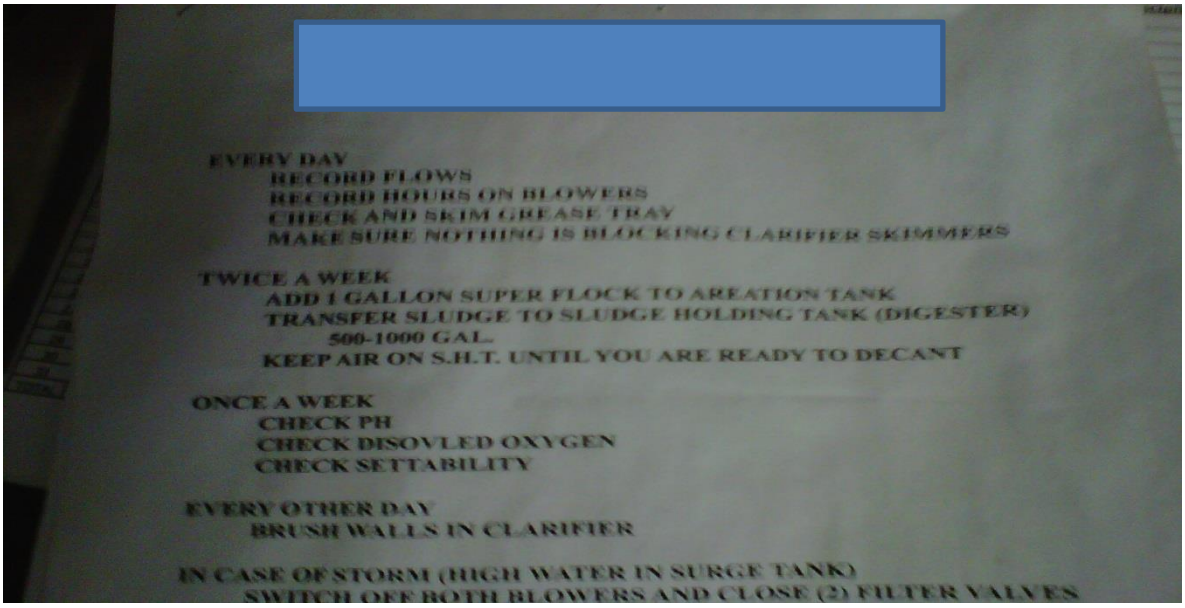
- Mr. Newop places a running garden hose in the effluent trough where the composite sampler is set prior to turning on the sampler.

- Based on influent flow and BOD you estimated the treatment plant will produce approximately 7000 lbs./year of sludge, records show that on average only 1000 lbs./year have been removed for the last 5 years.

- There are three influent lines and one unknown line located just behind the pump rail. The grease ring in the wet well is at the same approximate elevation of the line. You determine there are no returns or drains from the plant so, you dye test and determine it discharges upstream of the outfall.

- The wires to the high level alarm light and horn have been cut and taped and you have noticed raw sewage debris in the receiving stream.

FIGURE 1



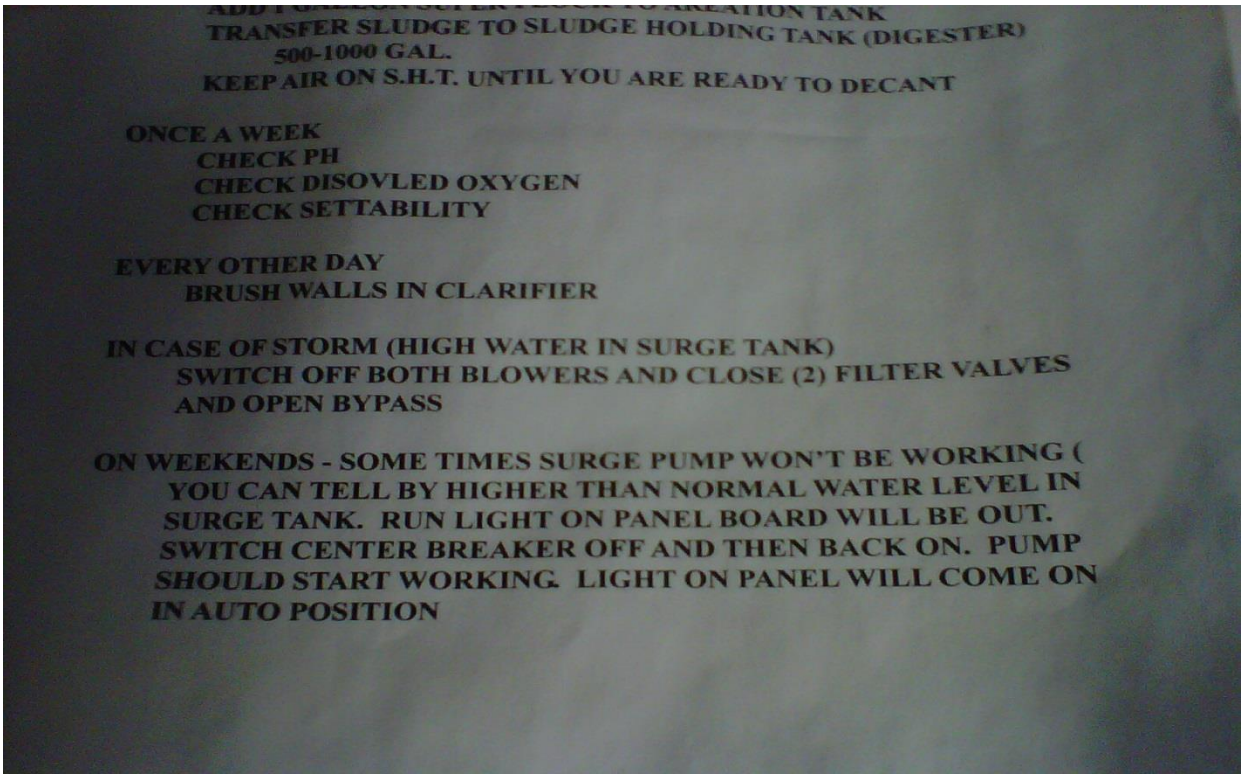
EVERY DAY
RECORD FLOWS
RECORD HOURS ON BLOWERS
CHECK AND SKIM GREASE TRAY
MAKE SURE NOTHING IS BLOCKING CLARIFIER SKIMMERS

TWICE A WEEK
ADD 1 GALLON SUPER FLOCK TO AREATION TANK
TRANSFER SLUDGE TO SLUDGE HOLDING TANK (DIGESTER)
500-1000 GAL.
KEEP AIR ON S.H.T. UNTIL YOU ARE READY TO DECANT

ONCE A WEEK
CHECK PH
CHECK DISOVLED OXYGEN
CHECK SETTABILITY

EVERY OTHER DAY
BRUSH WALLS IN CLARIFIER

IN CASE OF STORM (HIGH WATER IN SURGE TANK)
SWITCH OFF BOTH BLOWERS AND CLOSE (2) FILTER VALVES



TRANSFER SLUDGE TO SLUDGE HOLDING TANK (DIGESTER)
500-1000 GAL.
KEEP AIR ON S.H.T. UNTIL YOU ARE READY TO DECANT

ONCE A WEEK
CHECK PH
CHECK DISOVLED OXYGEN
CHECK SETTABILITY

EVERY OTHER DAY
BRUSH WALLS IN CLARIFIER

IN CASE OF STORM (HIGH WATER IN SURGE TANK)
SWITCH OFF BOTH BLOWERS AND CLOSE (2) FILTER VALVES
AND OPEN BYPASS

ON WEEKENDS - SOME TIMES SURGE PUMP WON'T BE WORKING (
YOU CAN TELL BY HIGHER THAN NORMAL WATER LEVEL IN
SURGE TANK. RUN LIGHT ON PANEL BOARD WILL BE OUT.
SWITCH CENTER BREAKER OFF AND THEN BACK ON. PUMP
SHOULD START WORKING. LIGHT ON PANEL WILL COME ON
IN AUTO POSITION