DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B623728055

FACILITY: YPSILANTI COMM. UTILITIES AUTHORITY		**SRN / ID:** B6237
LOCATION: 2777 STATE RD, YPSILANTI		**DISTRICT:** Jackson
CITY: YPSILANTI		**COUNTY:** WASHTENAW
CONTACT:		**ACTIVITY DATE:** 10/30/2014
STAFF: Glen Erickson	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Inspection focusing on incinerator operation in preparation for Dec. stack testing, status of PTI modification regarding maximum hourly sludge feed, and ROP renewal status.		
RESOLVED COMPLAINTS:		

Met with Luther Blackburn, Director of Wastewater Operations/Compliance, and Sree Mullapudi, P.E., Compliance Supervisor to discuss the status of their sewage sludge incinerator relative to planned December's annual stack testing for CO and Hg required under current PTI 68-02A; and status of PTI amendment to address reducing maximum rated capacity of dry sludge/hour feed rate; and status of ROP renewal.

Today's incinerator operation:

403 CEM's readings: CO = 14.93 avg. for last 24 hours. Compared with normal readings of 1 ppm or less; O2 = 12.9 %;

Incinerator data control readings:

12.54 % = O2;

1563 deg. F. avg. = freeboard temperature;

1441 deg. F. avg. = sand bed T;

10,409 scfm = incoming air to fluidized bed;

32.6 " w.g. = pressure drop across venturi scrubber;

354 gpm = water flow to venturi;

13.8 " w.g. = pressure drop across impingement tray scrubber;

510 gpm = water flow to impingement tray scrubber;

1.2 " w.g. = pressure drop across WESP;

6.8 " w.g. = pressure drop across GAC;

131 deg. F. = inlet T. to GAC;

132 deg. F = first pass T in GAC;

152 deg.F. = stack T.

Blackburn described several recent concerns about incinerator that may impact their ability to complete the annual Dec. scheduled stack testing.

1. A small breach has developed in the bellows section of the exhaust ductwork directly following the secondary heat exchanger. He has received bids to fix this breach, but it will take 3 separate contractors to accomplish the removal, the custom welding (off-site) by PEBCO with Inconel 625 steel, the repair of in-stack refractory, and the re-installation of the repaired ductwork.

2. Remove and replace the entire sand bed, and replace 2 damaged thermocouples within the bed. The sand bed is composed of a very custom sand called olivine; which is magnesium-iron silicate, and no longer is mined in the U.S., so it will take several weeks to receive a shipment.

3. Remove and replace all of the cassettes and the carbon. The 6.8 " w.g. pressure drop across the GAC is beginning to reach the point where the pressure drop starts increasing rapidly due to blinding. The increasing pressure drop across the GAC eventually reduces the sludge feed rate possible.

Discussed, again, the 2 methods that YCUA uses to determine the sludge feed rate. Perry Thomas had previously described this to me a year or two ago, that I needed refreshing. Blackburn described how they used a custom algorithm from the Schwing pump manufacturer to determine the amount of sewage is pumped by the pumps utilizing the density of the sludge, the moisture content, the length of the pump stroke, etc. The other method is to measure several sludge parameters measured for the sludge flow to the gravity belt presses, and the amounts of water squeezed out of the de-watered sludge. This second method used a manufacturer-given belt capture efficiency of 95%. Subsequent measurements by YCUA have shown that this capture efficiency is actually significantly less than this value: 83.5 % efficency measured on Oct. 20; and 72.9 % efficiency measured on Sept. 11.

Using the reduced, measured efficiencies YCUA finds the Schwing pump method , and the gravity belt de-watering calculation are very close. They have historically used the higher sludge feed rate calculations from the gravity belt calculations utilizing the assumed 95 % capture efficiency.

Blackburn will notify AQD when they know more about the chances they can complete the Dec. stack testing, as scheduled.

NAME GLEN ERIKSEN DATE 12-17-14 SUPERVISOR