

Water Pollution Control Plant Monthly Report



August, 2011

OVERVIEW AND HIGHLIGHTS

Plant personnel spent a large amount of time this past month on the new radio communication system for the sewer pump stations. We installed pump control systems into the control cabinets at all the city pump stations to communicate with the new antennas back to the Water Pollution Control Plant.

In the tertiary treatment building the maintenance staff have been replacing the influent and effluent valves to the filters. These valves are large in size, 18 and 24 inch valves, and are located 8 feet above the floor. The rigging of equipment to raise the valves into place requires extreme safety precautions. The old valves required replacement due to heavy corrosion that prevented us from controlling the levels in the filters. In addition to the valve replacement we are replacing some piping that has heavy corrosion, causing leaking during the surface washing cycle of the filters.

Heavy rains during the month had flows in excess of 25 million gallons per hour. These heavy rain events cause plant personnel to adjust the plant flows and add treatment processes to meet effluent limitations on solids and nutrients. The new treatment processes, primarily the secondary clarifiers, have performed very well during these rain events. New valving permits operators to turn on processes from the meter room versus having to manually open valves in the past.

The 2012 operating budget for the treatment plant was submitted to the Finance Department this month. A lot of time was spent reviewing plant expenditures in the past and identifying means to reduce cost in various line items. The difficult part of trying to reduce cost is the fact that process systems required to meet NPDES permit limits necessitate utility services (electricity, natural gas and water) and chemicals, each of which have historically increased on an annual basis. Personnel costs have been reduced due to the retirements of plant personnel. If the scheduled retirement holds true for our one eligible plant employee, our staff will be reduced to 16 total, this is down from the 22 employees we had ten years ago. We continue to work towards reducing cost by comparing repair parts cost with various vendors and performing predictive maintenance versus repair maintenance, which can result in major expenditures.

WPCP MONTHLY STAFF MEETING AND DISCUSSION

- Operations
 1. Pump Station Radios and Communications – To date, we have installed radio equipment at Poplar Lane, Recreation Park, Erie Street, Jackson Street and Fern Drive.
 2. Wet Weather Flows – Operations protocol during heavy rain events (above 6 mgd).
 - Grit tank operation
 - Clarifier operations
 - Flow control building
 - EQ Basin and intermediate clarifiers
 - Tertiary Filter operations
 - Disinfection operations
 - Pump Station monitoring
 3. Belt Filter Press – Operations has been having trouble getting the belt to track straight on the press. We have ordered two new matching belts to replace the existing belts. We hope this improves the operations.
 4. Copper Violations – Plant effluent. Working with Eckart America to reduce copper loading to sewerage system
 5. Blower Valves
 6. Lake County WPCP agreement

AUGUST EVENTS AND MEETINGS

1. On August 16, 2011 Randy Bruback attended a "Sunshine Laws Training Event" at Lakeland Community College.
2. Jeff Tressel, Laboratory Supervisor attended a Laboratory Training session at the Lake County Training Center on August 19, 2011.
3. Meter Calibrations were performed on the plants metering system on August 24, 2011.
4. On August 29, 2011 Randy Bruback met with Mike Melnyk, Lake County WPCP Supt and staff members to discuss ways of reducing cost for plant chemicals, services, equipment and related fees associated with the treatment of wastewater.
Caterpillar Services performed annual maintenance checks on the plant generator on August 31, 2011.

GOALS AND ACCOMPLISHMENTS

1. Near the completion of radio communications with the City's sewage pump stations. This new communication plan will eliminate the monthly cost for hard wired phone service, which is approximately \$200 per station each month.
2. The valve replacement in Tertiary treatment has begun and will continue through the end of the year. The valves are part of the WPCLF project and will complete the new construction associated with that project. New t-shirts were purchased for Operating engineers union members per contract agreement. The new t-shirts bear the logo "Proud to be Painesville".

Mission Statement

The mission of the Water Pollution Control Plant is to provide the most effective customer oriented wastewater collection and treatment to the citizens of Painesville.



*Grand River
Painesville, OH*

Results

	<u>This Month</u>	<u>Last Month</u>
Avg. Daily Flow	3.34 MGD	2.54 MGD
Flow Treated	103.56 Mill. Gal.	78.88 Mill. Gal.
Raw PO	3.23 Mg/L	4.31 Mg/L
Final PO	0.63 Mg/L	0.76 Mg/L
% Removed	80.5 %	82.4 %
PO to River	0.272 Tons	0.250 Tons
Raw C-BOD	134 Mg/L	190 Mg/L
Final C-BOD	1 Mg/L	1 Mg/L
% Removed	99.3 %	99.5 %
C-BOD to River	0.43 Tons	0.33 Tons
Raw Suspended Solids	230 Mg/L	319 Mg/L
Final Suspended Solids	1 Mg/L	1 Mg/L
% Removed	99.6 %	99.7 %
Suspended Solids to River	0.43 Tons	0.33 Tons

Meters

The Total Plant Flow meter was calibrated weekly, and found to be correct. The Lubrizol meter is checked weekly. The Total Plant Flow meter recorded 103.56 million gallons flow. The Lubrizol meter recorded 7,587,900 gallons flow.

Detritors

3.23 tons of grit was removed during the month.

Comminutors

1.49 tons of screenings was removed during the month.

Chemical Treatment

21,000 pounds of alum was required at a cost of \$3,150.00 for the removal of 2245.6 pounds of phosphorus. Cost of phosphorus removal for the month was \$1.40/pound.

Primary Clarifiers

The primary clarifiers operated satisfactorily during the month, removing 716,438 gallons of raw sludge containing 3.8% solids.

Anaerobic Digesters

The primary digesters operated satisfactorily during the month, transferring 773,470 gallons of raw sludge for pressing containing 3.8 % solids.

Secondary Treatment

The secondary clarifiers operated satisfactorily during the month.

Tertiary Treatment

The tertiary filters operated satisfactorily during the month.

Hypo-chlorination

1677 pounds of salt was used in the production of 585 pounds of available CL₂ to meet the chlorine demand in disinfecting the final effluent. The average residual was 0.02 mg/l CL₂. The maximum effluent residual was 0.97 mg/l CL₂ and the minimum effluent residual was 0.23 mg/l CL₂. Cost of chlorination for the month was \$178.55 or \$0.316 per pound of available CL₂.

Dechlorination

770 pounds of sodium bisulfite was used to maintain a maximum residual chlorine of 0.030 mg/l as per our N.P.D.E.S. Permit. Cost of dechlorination for the month was \$127.05.

Liquid Sludge

The filter press processed 844,143 gallons of liquid sludge producing 337.35 tons of wet cake, including 70,673 gallons of water plant sludge, containing 23.7% solids or 79.86 tons of dry solids. 1320.5 pounds of polymer were used at a cost of \$1,370.68. Cost of disposal at the Lake County Landfill was \$10,262.10.

Digester and Greenhouse Heating

The anaerobic digesters consumed 62,963 cubic ft. of generated methane and 61,302 cubic ft. of purchased gas.

Pump Stations

Erie Street pumps recorded 116.17 hours and pumped 697,020 gallons of wastewater.

Fern Drive pumps recorded 50.36 hours and pumped 664,752 gallons of wastewater.

Poplar Lane pump recorded 155.41 hours and pumped 5,128,530 gallons of wastewater.

Jackson Street pump recorded 35.66 hours and pumped 652,578 gallons of wastewater.

Recreation Park pump recorded 77.27 hours and pumped 1,390,860 gallons of wastewater.

Sanford Street pump recorded 101.91 hours and pumped 1,528,650 gallons of wastewater.

Valley View pumps recorded 17.78 hours and pumped 192,024 gallons of wastewater.

Brookstone flow meter recorded 1,241,453 gallons of sewer flow.

The Seven (7) pump stations pumped 10,254,414 gallons of wastewater and 36 man-hours were required in maintenance.

Respectfully Submitted,



Randy Bruback
Superintendent
Water Pollution Control Plant