



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

May 3, 2013

Re: Jackson County
Village of Oak Hill WWTP
Reconnaissance Inspection
Ohio EPA Permit 0PB00055*HD
NPDES Permit OH0026859
Correspondence (PWW)

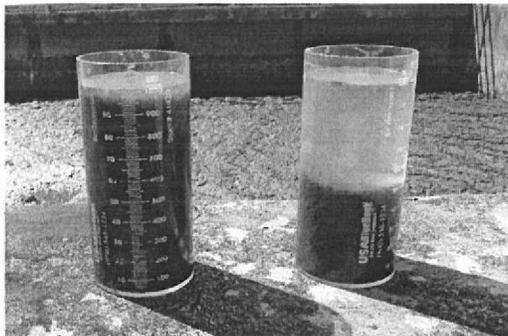
Mayor and Council
Village of Oak Hill
415 N. Front Street
Oak Hill, Ohio 45656

Dear Mayor and Council:

On April 23, 2013, Ohio EPA conducted a Reconnaissance Inspection at the Village of Oak Hill WWTP. The purpose of the inspection was to discuss future plant improvements with operator Dave Carpenter and consultant Jakob Meinerding.

The Village is reportedly optimistic that cost savings may be accomplished through a WWTP improvement project. I believe there is considerable electric savings that could be accomplished by better operations through timely sludge wasting and removal. In addition, compliance with the permit would be more stable if sufficient wasting was occurring from the treatment train(s).

We conducted a diluted settlometer test during the inspection. The following picture was taken after a few minutes:



Left jar contains 100% mixed liquor, Right jar is 50% mixed liquor and 50% effluent. The jar on the left should have fell below the 80 mark by the time this picture was taken. The facility needs to waste sludge. The diluted jar on the right proves that better settling can occur with less solids. This can translate into significant energy savings, by reducing RAS flow needing to be pumped by the plant's pump station. The plant currently has to operate with a real high RAS in order to provide for the poor settling shown by the jar on the left. With improved

wasting, the RAS could be scaled back saving on pump run time. Additionally, the high amount of solids contained in the plant have led to past TSS violations along with ammonia violations. I routinely have commented that this facility is not wasting sufficiently. A considerable amount of the plant's capacity is being limited by the way it is being operated. For example, on the day of the inspection had the facility been properly wasting it could have been running on one clarifier in lieu of two with less than half the RAS being circulated through the pump station. The plant's low F:M ratio may lead to filaments; it already exhibits extreme accumulations of scum common to low F:M.

The reported flows are summarized below:

Season	Year	# of Obs.	# Below Detection	Minimum	Percentiles						Maximum	Mean
					5th	25th	50th	75th	95th	99th		
Monitoring Station 001;		Reporting Code: 50050;		Parameter Name: Flow Rate (MGD)								
Winter Overall	2005-2013	781	0	0.001	0.121	0.165	0.226	0.327	0.557	0.6994	0.758	0.26528
Annual	2005	365	0	0.059	0.088	0.118	0.146	0.223	0.4634	0.66836	158	0.62579
Annual	2006	365	0	0.068	0.0822	0.101	0.133	0.205	0.4768	0.68676	1.1	0.18229
Annual	2007	365	0	0.052	0.0752	0.098	0.128	0.184	0.4358	0.67752	1.03	0.17131
Annual	2008	366	0	0.001	0.09425	0.123	0.1615	0.278	0.57075	0.67405	0.793	0.22383
Annual	2009	365	0	0.087	0.1	0.12	0.171	0.246	0.482	0.62436	0.752	0.20928
Annual	2010	365	0	0.048	0.092	0.129	0.17	0.253	0.4854	0.6528	0.708	0.21182
Annual	2011	365	0	0.096	0.1102	0.153	0.241	0.363	0.6426	0.70224	0.728	0.2875
Annual	2012	366	0	0.08	0.095	0.116	0.1535	0.23475	0.55525	0.69615	0.784	0.21224
Annual	2013	90	0	0.169	0.19635	0.2525	0.305	0.3915	0.6358	0.67544	0.679	0.34224
Annual Overall	2005-2013	3012	0	0.001	0.088	0.118	0.164	0.261	0.547	0.68189	158	0.26777

The Average Daily Design for the WWTP is 0.3 MGD. Considering the 99th percentile for flows is at two times the average design flow, the facility appears to have sufficient capacity. With the 50th percentile for flow at roughly half of the average daily design capacity and influent waste strengths at domestic strength, this plant could be operating with one aeration basin and half the time with just one clarifier.

In addition to better operations for solids management, I would recommend the following improvements.

1. Correct the headworks for proper velocity management in the grit channel. The screen causes the water elevation to climb way too far causing the incoming line to be submerged. This leads to grit falling out in the incoming sewer, which can cause overwhelming amounts of grit to enter the plant during heavier flows. I believe a recessed pit in the current grit chamber may accomplish this for the screen bottom to drop into.



The wet level on the spud bar above indicates multiple feet of water level. The water depth should be approximately half a foot to keep average velocities around 1 foot per second. This area could also be improved with extending walls above grade elevation. The incoming sewer should not be submerged, if possible.

2. Provide an efficiency plan for how to run the main pump station. Current operations show significant start and stops, I witnessed one of the larger pumps equipped with a VFD call on. It soft started up to 60Hz and then cycled back off all in less than 15 seconds. That type of pump operation will lead to rapid motor replacement.

A review of self-monitoring data from April 2009 through March 2013 indicates the following limit violations of your NPDES permit.

Parameter	Limit Type	Limit	Reported Value	Violation Date
Total Suspended Solids	30D Conc	12	16.125	5/1/2009
Total Suspended Solids	30D Qty	13.6	36.0497	5/1/2009
Fecal Coliform	7D Conc	2000	13000.	5/1/2009
Total Suspended Solids	7D Conc	18	55.5	5/1/2009
Total Suspended Solids	7D Qty	20.4	132.575	5/1/2009
Total Suspended Solids	7D Qty	34.1	36.6974	12/8/2009
Fecal Coliform	7D Conc	2000	24000.	5/15/2010
Fecal Coliform	7D Conc	2000	3300.	6/8/2010
Total Suspended Solids	30D Qty	13.6	13.7651	9/1/2010
Fecal Coliform	7D Conc	2000	3400.	9/8/2010
Fecal Coliform	7D Conc	2000	70000.	9/22/2010
Total Suspended Solids	7D Conc	18	42.5	9/22/2010
Total Suspended Solids	7D Qty	20.4	55.0604	9/22/2010
Total Suspended Solids	30D Conc	20	22.375	2/1/2011
Total Suspended Solids	30D Qty	22.7	49.7330	2/1/2011
Total Suspended Solids	7D Conc	30	87.	2/1/2011
CBOD 5 day	7D Qty	26.1	47.0263	2/1/2011
Total Suspended Solids	7D Qty	34.1	197.134	2/1/2011
Total Suspended Solids	30D Qty	22.7	31.7216	3/1/2011
Total Suspended Solids	7D Conc	30	46.	3/8/2011
Total Suspended Solids	7D Qty	34.1	121.375	3/8/2011
Total Suspended Solids	30D Qty	22.7	33.5071	4/1/2011
Total Suspended Solids	7D Conc	30	50.	4/8/2011
Total Suspended Solids	7D Qty	34.1	110.143	4/8/2011
Chlorine, Total Residual	1D Conc	0.019	1.48	8/1/2011
Dissolved Oxygen	1D Conc	6.0	5.54	8/1/2011
Total Suspended Solids	30D Qty	13.6	24.2911	9/1/2011
Fecal Coliform	7D Conc	2000	49000.	9/1/2011
Total Suspended Solids	7D Conc	18	43.	9/1/2011
Total Suspended Solids	7D Qty	20.4	97.1647	9/1/2011
Nitrogen, Ammonia (NH3)	7D Conc	2.3	4.2	9/8/2011
Fecal Coliform	7D Conc	2000	10000.	10/22/2011

Parameter	Limit Type	Limit	Reported Value	Violation Date
Total Suspended Solids	7D Qty	20.4	31.1789	10/22/2011
CBOD 5 day	30D Qty	17.0	21.0497	11/1/2011
Total Suspended Solids	30D Qty	22.7	22.7218	11/1/2011
CBOD 5 day	7D Conc	23	25.	11/15/2011
CBOD 5 day	7D Qty	26.1	57.1156	11/15/2011
Total Suspended Solids	7D Qty	34.1	54.3620	11/15/2011
CBOD 5 day	7D Qty	26.1	27.0831	11/22/2011
Total Suspended Solids	7D Qty	34.1	36.5252	11/22/2011
Total Suspended Solids	30D Conc	20	28.6	1/1/2012
Total Suspended Solids	30D Qty	22.7	48.6433	1/1/2012
Nitrogen, Ammonia (NH3)	7D Conc	6.0	7.76	1/1/2012
Total Suspended Solids	7D Conc	30	72.	1/15/2012
CBOD 5 day	7D Qty	26.1	31.3360	1/15/2012
Total Suspended Solids	7D Qty	34.1	147.575	1/15/2012
Total Suspended Solids	30D Conc	12	20.575	5/1/2012
Total Suspended Solids	30D Qty	13.6	45.8497	5/1/2012
Fecal Coliform	7D Conc	2000	2900.	5/1/2012
Total Suspended Solids	7D Conc	18	71.5	5/1/2012
CBOD 5 day	7D Qty	17.0	23.3913	5/1/2012
Total Suspended Solids	7D Qty	20.4	165.624	5/1/2012
Fecal Coliform	7D Conc	2000	6000.	5/8/2012
Total Suspended Solids	30D Qty	22.7	29.7452	12/1/2012
Total Suspended Solids	7D Conc	30	37.5	12/8/2012
Total Suspended Solids	7D Qty	34.1	83.5406	12/8/2012

If you have any questions, please feel free to contact me at (740) 380-5272.

Sincerely,

Aaron Pennington
 District Representative
 Division of Surface Water

AMP/dh

Enclosure

- c: Dave Carpenter, Operator
- c: Jakob Meinerding, Jones & Henry Engineers, Ltd.



State of Ohio Environmental Protection Agency
Southeast District Office

Municipal NPDES Compliance Inspection Report

Section A: National Data System Coding					
Permit #	NPDES #	Month/Day/Year	Inspection Type	Inspector	Facility Type
OPB00055*HD	OH0026859	April 23, 2013	R	S	I

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Oak Hill WWTP Township Road 726 (Knigge Road) Oak Hill, Ohio	~9:50 a.m.	November 1, 2012
	Exit Time	Permit Expiration Date
	~2:00 p.m.	October 31, 2017
Name(s) and Title(s) of On-Site Representative(s)	Phone Number(s)	
Dave Carpenter, Operator (Class I) Jakob D. Meinerding, Jones & Henry Engineers, Ltd.		
Name, Address, and Title of Responsible Official	Phone Number	
Mayor and Council		

Section C: Areas Evaluated During Inspection					
(S = Satisfactory; M = Marginal; U = Unsatisfactory; N = Not Evaluated; N/A = Not Applicable)					
N	Permit	N	Flow Measurement	N/A	Pretreatment
N	Records/Reports	N	Laboratory	N/A	Compliance Schedules
M	Operations & Maintenance	S	Effluent/Receiving Waters	N	Self-Monitoring Program
M	Facility Site Review	M	Sludge Storage/Disposal		Other
N	Collection System				

Section D: Summary of Findings (attach additional sheets if necessary)	
See attached cover letter. This inspection was conducted to evaluate the need for various plant improvements. The plant had a large inventory of solids which marginalizes the plant's capacity.	
Inspector	Reviewer
	
Date: 5-8-13	Date: 5/8/13
Aaron M. Pennington Division of Surface Water Southeast District Office	Jennifer M. Witte Compliance & Enforcement Supervisor Division of Surface Water Southeast District Office