Ohio | Environmental Protection Agency

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

March 2, 2012

Hickory Hills Lake Company
Attention: Ms. Elaine Bray
5900 Hickory Hills Drive
Hillsboro, Ohio 45133

RE: Hickory Hills Lake Company WWTW/Compliance Evaluation Inspection NPDES Permit No. OH0137707/OEPA PERMIT NO. 1PX00063*BD

Dear Ms. Bray:

On February 23, 2012, I conducted a NPDES Compliance Evaluation Inspection at the Hickory Hills Lake Company Wastewater Treatment Works (WWTW). Bob Creamer (Operator of Record) and Troy Byrd were present during this inspection. The purpose of the inspection was to evaluate compliance with the terms and conditions of the NPDES Permit. A copy of the report is provided within.

As noted in the report, there are deficient areas that need addressed without delay. **Please pay special attention to the "items requiring correction" shown in bold type; for there are compliance schedules associated with these items.**

Thank you for your time extended during the inspection process. If you have any questions, please feel free to contact me by phone at (937) 285-6029 or by e-mail at joshua.jackson@epa.state.oh.us.

Respectfully,

Joshua Jackson
Environmental Specialist II
Division of Surface Water

JJ/ca

cc: Bob Creamer (w/attachments)

Enclosures

Southwest District Office
401 East Fifth Street
Dayton, OH 45402-2911

937 | 285 6357
937 | 285 6249 (fax)
www.epa.ohio.gov

State of Ohio Environmental Protection Agency
Southwest District Office

NPDES Compliance Inspection Report
Semi-Public Sewage Disposal Inspection Form

Section A: National Data System Coding					
Permit #	**NPDES#**	**Month/Day/Year**	**Inspection Type**	**Inspector**	**Facility Type**
1PX00063*BD	OH0137707	2/23/2012	C	S	2

Section B: Facility Data		
Name and Location of Facility Inspected	**Entry Time**	**Permit Effective Date**
Hickory Hills Lake Company Located at the end of Poplar Drive (near swimming pool) Hickory Hills Lake Brush Creek Township, Highland County	11:50 a.m.	5/1/2009
	Exit Time	**Permit Expiration Date**
	2:00 p.m.	6/30/2012
Name(s) and Title(s) of On-Site Representatives	**Phone Number(s)**	
Troy Byrd, Maintenance		
Name(s), Address and Title(s) of Operator of Record	**Phone Number(s)**	
Brandon Leeth and Bob Creamer (ORCs)	937-393-4831	
Name, Address and Title of Responsible Official	**Phone Number**	
Elaine Bray, Treasurer Hickory Hills Lake Co. 5900 Hickory Hills Drive Hillsboro, OH 45133	513-405-9555	

Ohio EPA Inspector	Ohio EPA Reviewer
3-2-2012	Martyn G Burt 3/2/2012
Joshua Jackson Date Division of Surface Water Southwest District Office	Martyn Burt Date Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office

Permit # : 1PX00063*BD
NPDES #: OH0137707

Average Daily Design Flow:	**21,000 Gallons/Day**
Plant Serves:	20-25 perm. houses/140 seasonal lots
Average Daily Flow: (Period of Review):	**9,700 Gallons/Day (January 2011 - December 2012)**
Method of flow monitoring:	**Parshall Flume with level sensor (last calibrated April 5, 2011)**
Type of alarms for plant:	**high level visual alarms for EQ tank and sand filter dosing tank**

Pretreatment

Type of Pretreatment: **Trash Trap**
Does the Trash Trap need pumped: **No**
Maintenance of pretreatment components is: **Good**

Comments/Status:

Secondary Treatment (Aeration)

Color of sludge: **Medium Brown**
Quality of Sludge: **Medium**
Foam: **None present**
Odor: **No objectionable odor present**

	Yes	No		Yes	No
Aeration is taking place	☒	☐	Plant is septic	☐	☒
Blowers are operating	☒	☐	Blowers are on a timer	☒	☐
Skimmers are operating	☒	☐	Plant is flooded	☐	☒
Diffusers are operating	☒	☐	Grating is present	☒	☐
Sludge return is operating	☒	☐			

Maintenance of aerating equipment is...**Good**

Comments/Status:

Permit # : 1PX00063*BD
NPDES #: OH0137707

Secondary Treatment (Settling)

Clarity: **Clear**
Condition of Weir: **Clean**
Weir is level: **Yes**
Effluent in weir: **Clear**
Clarifier walls need scraped: **No**

Overall maintenance of settling components is: **Good**

Comments/Status:

Tertiary Treatment

	Yes	No		Yes	No
Surface sand Filters: **Slow**	☒	☐	**Subsurface**	☐	☒
Distribution box operating	☒	☐	Beds alternated	☒	☐
Are filters ponding/flooding	☒	☐	Beds raked	☒	☐
Sand filters overgrown	☐	☒	Chlorination present	☐	☒
UV present	☒	☐	Dechlorination present	☐	☒

Overall maintenance of components is: **Good**

Comments/Status:

Sludge Handling/Storage Disposal

Hauler name: **Theener Septic Disposal**
Disposal Site: **Washington Courthouse WWTW**
Sludge wasted from: **Sludge holding tank**
How often is sludge wasted: **2-3 times/year**
Sludge drying beds: **No** Sludge holding tank: **Yes**

Overall maintenance of components is: **Good**

Comments/Status:

Record Keeping/ Operator of Record

(a) Wastewater Treatment Works classification (OAC 3745-7)..... A
(b) Operator of Record holds unexpired license of class required by Permit..... Y
(c) Copy of certificate of Operator of Record displayed on-site..... N
(d) Has the Operator of Record submitted an ORC Notification form.. Y
(e) Minimum operator staffing requirements fulfilled (OAC 3745-7).... Y
(f) If a Staffing Reduction plan has been approved, are the stipulations of the plan being met.....N/A
(g) Operator of Record log book provided..... Y
(h) Format of log book (e.g. computer log, hard bound book)

Hard bound

(i) Log book kept onsite (in an area protected from weather)..... Y
(j) Log book contains the following:
  I. Identification of treatment works..... Y
  II. Date/times of arrival/departure for Operator of Record and any other operator required by OAC 3745-7..... Y
  i. Daily record of operator and maintenance activities (including preventative maintenance, repairs and request for repairs, process control test results, etc.)..... Y
  ii. Laboratory results (unless documented on bench sheets)... N
  iii. Identification of person making entries..... Y
(k) Has the Operator of Record submitted written notifications to the permittee, Ohio EPA and, if applicable, any local environmental agencies when a collection system overflow, treatment plant bypass or effluent limit violation has occurred..... Y

Comments/Status:

Operators of Record need to have a copy of their certificates posted on the WWTW grounds (you may want to keep a copy in the ORC logbook). This should be completed no later than March 9, 2012.

Plant Discharge

Discharge point is a: **Stream**
Name of discharge point: **Heads Branch**
Discharge is visible: **No** Quality of Effluent: **Clear**

Comments/Status:

Staff was draining the lake so the discharge point was not accessible.

Inspection Findings
(Items for Correction in Bold Type)

Quality Assurance & Standard Operating Procedures

The foundation of the NPDES permitting program is the reliability of data "self-reported" by wastewater dischargers under permit. Part III, 3., of Hickory Hills Lake Company's NPDES permit requires "All wastewater treatment works shall be operated in a manner consistent with the following: At all times, the permittee shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee necessary to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures..." Part III, 5., goes on to say, "Test procedures for the analysis of pollutants shall conform to regulation 40 CFR 136... The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to insure accuracy of measurements."

The federal regulatory benchmark for all water and wastewater sampling/laboratory procedures is 40 CFR 136. This rule lists acceptable sampling and laboratory procedures published in "Standard Methods for the Examination of Water and Wastewater" (Standard Methods) among other resources such as the American Society for Testing and Materials (ASTM). Standard Methods is a comprehensive reference widely used throughout the industry and is cooperatively published by the American Water Works Association, Water Environment Federation and the American Public Health Association.

Standard Methods 1020A establishes that "Quality assurance (QA) is the definitive program for laboratory operation that specifies the measure required to produce defensible data of know precision and accuracy". Without a QA program, Hickory Hills Lake Company is without defensible data showing compliance with the NPDES permit. Standard Methods goes on to require the inclusion of Standard Operating Procedures (SOP) for each analytical method within the QA manual. The SOP should include the following applicable categories:

- Title
- Procedure
- Scope and Application
- Calculations
- Summary
- Quality Control (calibration)
- Sample Handling and Preservation
- Maintenance
- Interferences
- Corrective Action
- Apparatus and Materials
- Reference (Parent Method)
- Reagents

No SOPs were available during the inspection. **It is expected that Hickory Hills Lake Company develop complete SOPs for all analytical procedures performed at the WWTW (including temperature, pH, dissolved oxygen and nitrogen-ammonia) by no later than May 31, 2012. During the inspection, example SOPs and excerpts of Standard Methods were given to Mr. Creamer in order to help develop the SOPs.**

During future inspections, it is expected that these SOPs will be available for review by Ohio EPA compliance staff as well as all components of the SOP (chain-of-custody forms, bench sheets, laboratory equipment manuals, laboratory equipment logbooks, etc.).

EFFLUENT LIMIT VIOLATIONS
(Period of Review: January – December 2011)

7D = Weekly 30D = Monthly 1D = Daily
Conc. = Concentration (mg/l) Qty.= Quantity (Kg/Day)

Reporting Period	Station	Parameter	Limit Type	Limit	Reported Value
June 2011	001	Chlorine, Total Residual	1D Conc	0.038	.11
June 2011	001	Chlorine, Total Residual	1D Conc	0.038	.16

*Hickory Hills Lake Company installed an ultraviolet disinfection system in 2011. Since that time, no other violations have occurred.

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
pH Meter		Acceptable?		
• Calibration Frequency / Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3]	☐ Yes	☒ No	U
	• Logbook maintained[2]	☐ Yes	☒ No	
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket anticipated result[7]	☐ Yes	☒ No	
• Slope Documentation / Acceptability	• Slope acceptable range indicated on benchsheet[2]	☐ Yes	☒ No	
• Buffer Expiration Date	• Buffers must not be expired	☒ Yes	☐ No	
• Other	• Instrument manual available	☐ Yes	☒ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[8]	☐ Yes	☒ No	

Comments: **ORC did not have a pH meter that was acceptable per 40 CFR 136. An acceptable pH meter must be utilized without delay, but no later than March 16th, 2012. The existing meter cannot be used for eDMR reporting.**

Criteria	Standard Methods Requirement			Rating
Dissolved Oxygen Meter		Acceptable?		
• Calibration Method	• Air or known DO calibration method[10]	☐ Yes	☒ No	U
	• Calibration per manufacturer specification[10]	☐ Yes	☒ No	
• Calibration Frequency / Documentation	• Logbook maintained[2]	☒ Yes	☐ No	
	• Calibration verification required at least once each day the meter is used.[3]	☒ Yes	☐ No	
• Other	• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)[11]	☐ Yes	☒ No	
	• Instrument manual available	☐ Yes	☒ No	

Comments: **ORC could not describe how to correctly calibrate the DO meter – YSI 55 (instrument manual was used to verify after the inspection). The ORC must be able to correctly calibrate the DO meter according to the manufacturer's instructions. The manual for the DO meter was not kept on-site or with the instrument. This must be corrected immediately.**
There was no "wet sponge" where the membrane probe was stored so it would be difficult to show a 100% saturated environment needed for calibration. This must be corrected immediately.
There was a large bubble under the probe's membrane, which could cause incorrect values for reporting. This must be corrected immediately and checked frequently.

Until all of these items are corrected. This DO meter cannot be used to report dissolved oxygen results on the eDMRs.

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Refrigerator		Acceptable?		
• Temperature Recordkeeping	• Temperature Log (thermometer accurate to 0.5 Celsius).[5]	☐ Yes	☐ No	U
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1, 2]	☐ Yes	☐ No	
• Other	• Thermometer held in water bath.[1]	☐ Yes	☐ No	
	• Refrigerator temperature ≤6° Celsius.[13]	☐ Yes	☐ No	
	• Do not store volatile solvents, food, or beverages.[14]	☐ Yes	☐ No	

Comments: **ORC grabs samples at the WWTW effluent and then travels approximately 20-25 minutes to the City of Hillsboro WWTW where the samples are refrigerated for a courier to take the samples MASI. During the travel time between the Hickory Hills Lake Co. WWTW and the City of Hillsboro WWTW, the samples must be refrigerated to a temperature of ≤6° C. Cooler temperatures should be verified at the time of departure from Hickory Hills and the time of arrival at the Hillsboro WWTW.**

Criteria	Standard Methods Requirement			Rating
Ammonia Meter		Acceptable?		
• Calibration Frequency / Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3]	☐ Yes	☐ No	NE
	• Log book being maintained[2]	☐ Yes	☐ No	
• Slope acceptability	• Verify calibration slope is acceptable (per mfg. spec.).	☐ Yes	☐ No	
• Calibration Method	• Standards used for calibration (3 ammonia solutions of 10 mg/l, 1 mg/l, and 0.1 mg/l) or per mfg. spec.[17]	☐ Yes	☐ No	
	• Standards used for calibration not expired	☐ Yes	☐ No	
• Other	• Electrode free of deposits and foreign material	☐ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[18]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	

Comments: : The ammonia meter was not at the site at the time of inspection.

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Sample Collection/Handling		Acceptable?		
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed).[19]	☒ Yes	☐ No	M
• Chain of Custody	• Chain of custody (description, date, time, signature).[19]	☒ Yes	☐ No	
	• Equipment blanks utilized[14]	☐ Yes	☒ No	
	• SOP for cleaning of sampling equipment	☐ Yes	☒ No	
	• Logbook being maintained[2]	☒ Yes	☐ No	

Comments: **Chain of custody sheets records should be stored at the Hickory Hills WWTW along with the sampling results.**

Criteria	Standard Methods Requirement			Rating
Bench sheets		Acceptable?		
• General criteria	• Date(s)[2]	☒ Yes	☐ No	M
	• Analyst initials[2]	☒ Yes	☐ No	
	• Blue or black ink pen[2]	☒ Yes	☐ No	
	• Calibration information[2]	☐ Yes	☒ No	
	• Equations, calculations, units for all measurements, notations, and results present[2]	☐ Yes	☒ No	
	• Corrections, single line through, initialed and dated[2]	☒ Yes	☐ No	

Comments: **Bench sheets should contain calibration information for each meter. The ORC was instructed to prepare bench sheets, which would contain all the necessary information.**

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Final Effluent Temperature Monitoring		Acceptable?		
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer [1,2]	☐ Yes	☒ No	**M**
	• Thermometer accurate to 0.1° Celsius[5]	☒ Yes	☐ No	
	• Log book being maintained [2]	☒ Yes	☐ No	

Comments: **The thermometer for the DO meter was not calibrated with an NIST traceable thermometer. This annual calibration must be completed no later than March 16, 2012.**

Number of Criteria Rated:		
	Acceptable	
	Marginal	
	Unacceptable	
	Total Number of Areas Rated	

Acceptable Ratings – No action required (recommend SOP's written or updated, perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, written response not required).

Marginal Ratings – Improvements required, written response required (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response).

Unsatisfactory Rating - Improvements required, written response required, NOV issued (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response to NOV).

Consider recommending PAI Audit from DES when:	>60% of ratings are Marginal >45% of ratings are a combination of Marginal or Unacceptable >30% of ratings are Unacceptable

Notation of Referenced Method

1 Method 9020-B, Item 3
2 Method 1020-A, Item 1
3 Method 1020-B, Item 10
4 Method 2540-B, Item 2
5 Method 2550-B, Item 1
6 Method 1020-A, Item 1
7 Method 4500-H B, Item 4
8 Method 4500-H B, Item 2
9 Method 1020-B, Item 2
10 Method 4500-O B, Item 3
11 Method 4500-O G, Item 3
12 Method 5210-B, Item 5
13 CFR 136.3, Table II
14 Method 1060A, Item 1
15 Method 4500-Cl I, Item 2
16 Method 4500-Cl I, Item 4
17 Method 4500-NH3 D, Item 4
18 Method 4500-NH3 D, Item 2
19 Method 1060-B, Item 2
20 Method 1060-B, Item 1
21 Method 9222D, Item 1
22 Method 9223 B, Item 2
23 Method 9223 B, Item 3
24 Method 1603, Item 2
25 Method 9030-B, Item 3
26 Method 9020 B, Table IV

General Lab Criteria

Equipment Logbook Content - all maintenance performed on a piece of equipment should be documented in the logbook. This should include parts replacement and routine maintenance activities. Entries should include date, maintenance performed and initials of person making entry.

Preservation and Holding Times

Parameter	Container	Min. Sample Size (mL)	Sample Type	Preservation	Maximum Storage Time	
					Recommended	Regulatory
BOD / CBOD	P, G	1000	G, C	Refrigerate ≤6° C	6h	48h
TSS	P, G	200	G, C	Refrigerate ≤6° C	7 d	7 d
pH	P, G	50	G	Analyze immediately	0.25h	0.25 h
NH3-N	P, G	500	G, C	Analyze as soon as possible or add H_2SO_4 to pH <2, Refrigerate ≤6° C	7 d	28 d
TRC	P, G	500	G	Analyze immediately	0.25h	0.25 h
DO (electrode)	G, BOD Bottle	300	G	Analyze immediately	0.25h	0.25 h
Temperature	P, G	--	G	Analyze immediately	0.25h	0.25 h
Metals, general	P, G	1000	G, C	For dissolved filter immediately and add HNO_3 to pH <2	6 months	6 months
Purgeables by purge and trap	G (PTFE lined lid)	40 (X2)	G	HCl to pH<2, Refrigerate ≤6° C	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	C, G	Refrigerate ≤6° C	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate ≤6° C	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate ≤10° C If chlorine present, add sodium thiosulfate tablet	6 hrs transport Start analysis within 2 hrs of receipt in lab.	
Oil and Grease	G	1000	G	HCl or H_2SO_4 to pH <2, Refrigerate ≤6° C	28 d	28 d

Approved Standard Methods

CBOD / BOD 5 Day	Std Methods 5210-B
Ammonia, Selective Electrode Method	Std Methods 4500-NH3 D
Total Residual Chlorine, DPD Colorimetric Method	Std Methods 4500-Cl G
Total Suspended Solids, Dried at 103-105 °C	Std Methods 2540-D
Dissolved Oxygen, Membrane Electrode Method	Std Method 4500-O G
pH, Electrometric Method	Std Methods 4500-H+ B
Fecal Coliform, Membrane Filter Procedure	Std Methods 9222D
Escherichia Coli, Enzyme Substrate Test	Std Method 9223B
Escherichia Coli Membrane Filtration Procedure	EPA Method 1603
Oil and Grease	USEPA 1664A or Std Methods 5520B
Metals, general	USEPA 200, Std Methods 3111B or C, or 3120B
Volatiles (Purgeables by purge and trap)	USEPA 6210, Std Methods 624
Semi-Volatiles (Base/Neutrals and acids)	USEPA 6410, Std Methods 625
Pesticides	USEPA 6410 and 6630, Std Methods 608