



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049



1PX0006120101013

HIGHLAND BUTLER SPRINGS CHRISTIAN CAMP & RETREAT JACKSON, JOSHUA 2010/10/13
CTR

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director



**Environmental
Protection Agency**

Gov. Strickland, Governor
Lee Fisher, Lt. Governor
Chris Kottick, Director

October 14, 2010

Butler Springs Christian Camp & Retreat Center
Attn: Mr. Keith Warner
3701 SR 41
Hillsboro, OH 45133

Correct
**RE: Butler Springs WWTW/Compliance Evaluation Inspection
NPDES Permit No. OH0137561/OEPA PERMIT NO. 1PX00061*BD**

Dear Mr. Warner:

On October 7, 2010, I conducted a NPDES Compliance Evaluation Inspection at the Butler Springs Christian Camp & Retreat Center wastewater treatment works (WWTW). Terry Baker, Operator of Record and Facilities Director, was 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.

The wastewater treatment works was in good working condition and improvements had been made since the last inspection. There are "items requiring correction" noted within the report that involve laboratory quality assurance and also recommendations for WWTW operation during extreme cold weather conditions.

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

Cc: Terry Baker, Butler Springs (w/report)

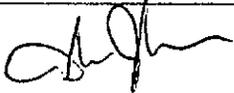
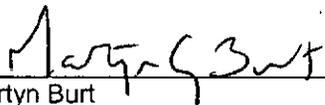


State of Ohio Environmental Protection Agency
Southwest District Office

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
1PX00061*BD	OH0137561	10/7/2010	C	S	2

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Butler Springs Christian Camp & Retreat Center 3701 SR 41 Highland County, Brush Creek Township	9:50 a.m.	4/1/2010
	Exit Time	Permit Expiration Date
	11:30 a.m.	8/31/2011
Name(s), Address and Title(s) of Operator of Record	Phone Number(s)	
Terry Baker, Facilities Director	937-588-2205	
Name, Address and Title of Responsible Official	Phone Number	
Keith Warner, Camp Director 3701 SR 41 Hillsboro, OH 45133	937-588-2205	

Ohio EPA Inspector	Ohio EPA Reviewer
	
Date 10-14-10	Date 10/15/10
Joshua Jackson Division of Surface Water Southwest District Office	Martyn Burt Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office

Permit # : 1PX00061*BD
 NPDES #: OH0137561

Average Daily Design Flow:	10,000 Gallons/Day
Plant Serves:	(3) 3-bedroom homes and 210 campers
Average Daily Flow: (Period of Review):	6,500 Gallons/Day (September 2009 - August 2010)
Method of flow monitoring:	elapsed time meters on sand filter dosing pumps
Type of alarms for plant:	high water alarms for influent wet well and sand filter dosing pump wet well

Pretreatment

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

Comments/Status:

Was pumped out on September 13, 2010. Is pumped out at least twice/year.

**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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Plant is septic	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Blowers are operating	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Blowers are on a timer	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Skimmers are operating	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Plant is flooded	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Diffusers are operating	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Grating is present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sludge return is operating	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

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

Comments/Status:

**Secondary Treatment
(Settling)**

Clarity: **Clear**
 Condition of Weir: **Clean**

Permit # : 1PX00061*BD
NPDES #: OH0137561

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Subsurface	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Distribution box operating	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Beds alternated	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are filters ponding/flooding	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Beds raked	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sand filters overgrown	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chlorination present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
UV present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dechlorination present	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Overall maintenance of components is: **Excellent**

Comments/Status:

UV and post aeration added in 2010.

Sludge Handling/Storage Disposal

Hauler name: **AAA Sanitary (Manchester)**
Disposal Site: **Manchester WWTW**
Sludge wasted from: **Sludge Holding tank**
How often is sludge wasted: **as needed but typically twice/year**
Sludge drying beds: **No** Sludge holding tank: **Yes**

Overall maintenance of components is: **Excellent**

Comments/Status:

Sludge hauled on 9/13/2010.

Plant Discharge

Discharge point is a: **Stream**
Name of discharge point: **Sunfish Creek**
Discharge is visible: **Yes** Quality of Effluent: **Clear**

Comments/Status:

Inspection Findings
 ("Items for Correction" shown in bold type)

EFFLUENT LIMIT VIOLATIONS
 (Period of Review: September 2009 – August 2010)

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

Reporting Period	Parameter	Limit Type	Limit	Reported Value
September 2009	Dissolved Oxygen	1D Conc	6.0	3.94
October 2009	Chlorine, Total Residual	1D Conc	0.019	.2
October 2009	Chlorine, Total Residual	1D Conc	0.019	.2
November 2009	pH	1D Conc	6.5	6.49
December 2009	pH	1D Conc	6.5	5.41
December 2009	pH	1D Conc	6.5	6.4
February 2010	Nitrogen, Ammonia (NH3)	30D Conc	3.0	8.3
February 2010	CBOD 5 day	30D Conc	10	13.
February 2010	Nitrogen, Ammonia (NH3)	7D Conc	4.5	8.3
March 2010	Nitrogen, Ammonia (NH3)	30D Conc	3.0	21.
March 2010	Dissolved Oxygen	1D Conc	6.0	5.61
March 2010	Nitrogen, Ammonia (NH3)	7D Conc	4.5	21.
March 2010	pH	1D Conc	6.5	6.46

Wastewater Treatment Works (WWTW) Overview

Butler Springs has made improvements to the WWTW since the last inspection with the addition of post aeration (in the old chlorine contact tank) and a UV disinfection system.

The violations reported in February and March of 2010 were attributed to extremely cold winter conditions and lack of a food supply for the wastewater bacteria (camp was practically uninhabited with the exception of staff during that time frame). As I discussed with Mr. Baker during the inspection, there are actions that the campground can take during similar events in the future that would greatly increase the chances of attaining compliance with the discharge permit; they are as follows:

- Place rigid insulation over the aeration basin and the clarifiers to hold heat in.
- Reduce the amount of air to the aeration basin. The bacteria do not require as much oxygen in the winter time and water will hold more oxygen as the temperature decreases. When you aerate, more and more

of the mixed liquor is exposed to the ambient temperatures so it is difficult to keep water temperatures at levels that maintain treatment efficiency.

- Provide supplemental food sources during this time of camp inactivity, such as dog food, rabbit food or seed from another WWTW.

In the springs of 2010, Mr. Baker repaired two clean-outs in the collection system that were draining a considerable amount of surface storm run-off. Mr. Baker believes this has made a difference in the influent sanitary flows during and directly after a rain event.

Spare UV disinfection bulbs should be kept on-site in the event that the existing bulb failed. This should be made available as soon as possible but no later than March 1, 2011.

Laboratory Quality Assurance

The foundation of the NPDES permitting program is the reliability of data "self-reported" by wastewater dischargers under permit. Part III, 3., of Butler Springs' 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 known precision and accuracy". *Without a QA program, the City 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:

Permit # : 1PX00061*BD
NPDES # : OH0137561

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

During the inspection, Mr. Baker was given example SOPs and/or sections of Standard Methods for every analytical method performed at the WWTW. **It is expected that Butler Springs develop SOPs for the following analytical procedures (at a minimum) by no later than March 1, 2011: pH, temperature, dissolved oxygen and sample collection. Each of the SOPs should comply with the analytical methods outlined in Standard Methods.**

● General Lab Criteria ●

Criteria	Standard Methods Requirement		Acceptable?	Rating
pH Meter				NR
• 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	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Logbook maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket , anticipated result ⁷	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Slope Documentation / Acceptability	• Slope acceptable range indicated on benchsheet ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Buffer Expiration Date	• Buffers must not be expired	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Other	• Instrument manual available	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Teflon covered magnetic stirrer or equivalent for mixing ⁸	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Comments: : Manual must be obtained for the pH meter and calibration/documentation should begin without delay.				

Criteria	Standard Methods Requirement		Acceptable?	Rating
Dissolved Oxygen Meter				NR
• Calibration Method	• Air or known DO calibration method ¹⁰	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Calibration per manufacturer specification ¹⁰	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Calibration Frequency / Documentation	• Logbook maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Calibration verification required at least once each day the meter is used. ³	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Other	• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil) ¹¹	N/A LDO meter		
	• Instrument manual available	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Comments: Manual must be obtained for the pH meter and calibration/documentation should begin without delay.				

General Lab Criteria

Criteria	Standard Methods Requirement		Rating
Sample Collection/Handling	Acceptable?		NR
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed). ¹⁹	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Chain of Custody	• Chain of custody (description, date, time, signature). ¹⁹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Other	• Composite samples refrigerated during sample collection ¹⁴	N/A grab samples only. Are put in a cooler prior to pick-up by a contract lab.	
	• Equipment blanks utilized ¹⁴	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• SOP for cleaning of sampling equipment	N/A	
	• Logbook being maintained ²	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Comments:			

● General Lab Criteria ●

Criteria	Standard Methods Requirement	Acceptable?		Rating
Final Effluent Temperature Monitoring				
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	NR
	• Thermometer accurate to 0.1° Celsius ⁵	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Comments:				
Number of Criteria Rated:				Acceptable
				Marginal
				Unacceptable
				Total Number of Areas Rated
<p>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).</p>				
<p>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).</p>				
<p>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).</p>				
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 | 14 Method 1060A, Item 1 |
| 2 Method 1020-A, Item 1 | 15 Method 4500-CI I, Item 2 |
| 3 Method 1020-B, Item 10 | 16 Method 4500-CI I, Item 4 |
| 4 Method 2540-B, Item 2 | 17 Method 4500-NH3 D, Item 4 |
| 5 Method 2550-B, Item 1 | 18 Method 4500-NH3 D, Item 2 |
| 6 Method 1020-A, Item 1 | 19 Method 1060-B, Item 2 |
| 7 Method 4500-H B, Item 4 | 20 Method 1060-B, Item 1 |
| 8 Method 4500-H B, Item 2 | 21 Method 9222D, Item 1 |
| 9 Method 1020-B, Item 2 | 22 Method 9223 B, Item 2 |
| 10 Method 4500-O B, Item 3 | 23 Method 9223 B, Item 3 |
| 11 Method 4500-O G, Item 3 | 24 Method 1603, Item 2 |
| 12 Method 5210-B, Item 5 | 25 Method 9030-B, Item 3 |
| 13 CFR 136.3, Table II | 26 Method 9020 B, Table IV |

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.

General Lab Criteria

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 $\leq 6^{\circ}\text{C}$	6h	48h
TSS	P, G	200	G, C	Refrigerate $\leq 6^{\circ}\text{C}$	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 $\leq 6^{\circ}\text{C}$	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 $\leq 6^{\circ}\text{C}$	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	C, G	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate $\leq 10^{\circ}\text{C}$ 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 $\leq 6^{\circ}\text{C}$	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

