



Missouri Department of [dnr.mo.gov](http://dnr.mo.gov)

**NATURAL RESOURCES**

Eric R. Greitens, Governor

Carol S. Comer, Director

March 1, 2017

Hillcrest Operating Utility Company, Inc.  
500 Northwest Plaza Drive  
Suite 500  
St. Ann, MO 63074

### FINDING OF COMPLIANCE

Staff from the Missouri Department of Natural Resources conducted an inspection on February 28, 2017, of the Hillcrest Manor Wastewater Treatment Facility (WWTF), at 720 Williams Street, Cape Girardeau, Missouri, in Cape Girardeau County.

Compliance with the Missouri Clean Water Law was evaluated. Hillcrest Manor WWTF was found to be **in compliance** based upon the observations made at the time of the evaluation.

The enclosed report describes the findings and may provide important recommendations that should be considered to ensure continued compliance. Your cooperation implementing those recommendations will be appreciated.

Fact sheets are available on the department's web site to assist entities with understanding and following environmental requirements.

If you have any questions or would like to schedule a time to meet with department staff to discuss compliance requirements, please contact, Tim Mattingly at (573) 429-6100 or in writing at the Southeast Regional Office, 2155 N. Westwood Blvd., Poplar Bluff, MO 63901.

Sincerely,

SOUTHEAST REGIONAL OFFICE

Arthur Goodin, CHMM  
Chief, Water Pollution Control Unit

Enclosures: Report of Inspection



RECEIVED MAR 10 2017

**Missouri Department of Natural Resources**  
**Southeast Regional Office/Water Protection Program**  
**Report of Inspection**  
**Hillcrest Manor WWTF**  
**720 Williams Street/Cape Girardeau/Cape Girardeau County**  
**MO-0088072**  
**March 1, 2017**

**Introduction**

Pursuant to Section 644.026.1 RSMo of the Missouri Clean Water Law, I conducted a routine compliance inspection of the Hillcrest Manor WWTF in Cape Girardeau County, Missouri, on February 28, 2017. Participants in the inspection were:

Hillcrest Manor WWTF

Terry Brady, Wastewater Operator (WW C#12381) (573) 243-4080 [bstricklandengineering.com](mailto:bstricklandengineering.com)

MDNR

Tim Mattingly, Environmental Specialist III

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit MO-0088072, the Missouri Clean Water Commission Regulations, and the Missouri Clean Water Law. This report presents the findings and observations made during the compliance inspection.

**Entity Description and History**

Missouri State Operating Permit MO-0088072 was issued on July 1, 2013, and expires on September 30, 2017. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow.

The legal description of Hillcrest Manor WWTF is listed on the permit as Landgrant 211 in Cape Girardeau County. The UTM coordinates for this site are x=798478, y=4134337. The receiving stream for this outfall is a tributary to Williams Creek, watershed number 07140107-0601.

The wastewater treatment entity consists of a two-cell lagoon, a moving bed biofilm reactor, a polishing lagoon cell followed by chlorination and de-chlorination. The design population equivalent is 940 with a design flow of 60,000 gallons per day. The actual flow is 41,680 gallons per day. Design sludge production is 7.19 dry tons per year.

The last inspection was conducted by John Chronister on May 9, 2012, and the entity was found to be in non-compliance at that time. Two major items of the non-compliance included failure to meet a Schedule of Compliance in the Missouri State Operating Permit and operating a water contaminant point source with an expired Missouri State Operating Permit. This prompted the issuance of Notice of Violation number 19130 SE and an Enforcement Action Request, both issued on June 6, 2012. A review of the compliance history as recorded in the Missouri Clean Water Information System (MoCWIS) was reviewed from February 1, 2015 through February 28, 2017 with nine violations found. These violations were as follows: exceeded the biochemical oxygen demand (BOD) limit on February 28, 2015; exceeded the *Escherichia coli* (*E. coli*) limit on May 31, 2015; exceeded the ammonia as nitrogen limit on December 31, 2015; failed to report BOD, flow, ammonia as nitrogen, and total suspended solids (TSS) on October 31, 2016; failed to report BOD on November 30, 2016; and failed to report BOD on December 31, 2016. These issues have been addressed.

An Abatement Order on Consent was agreed upon and signed on February 2, 2013. A major portion of this agreement was upgrading the WWTF to enable it to meet the current parameter limits of the Missouri State Operating Permit. Construction Permit #CP0001685 was issued by the Department to Hillcrest Operating Utility Company, Inc. to proceed with the proposed upgrades to the WWTF.

### **Discussion of Inspection and Observations**

The inspection was conducted during normal business hours, but was announced to insure a representative from Strickland Engineering would be able to meet with me. I prearranged to meet with Mr. Terry Brady, Wastewater Operator for Strickland Engineering (WW-C #12381) at the entrance to Hillcrest Manor Subdivision. It was drizzling rain upon my arrival at the prearranged location. Meeting with Mr. Brady briefly, I explained the purpose and scope of the inspection.

Mr. Brady led the way to the WWTF. The Hillcrest Manor Subdivision WWTF was upgraded recently to a new technology, incorporating a moving bed biofilm reactor in the treatment process. Photographs were taken of the new moving bed biofilm reactor, the three-cell lagoon, the polishing cell, and the chlorination disinfection unit and de-chlorination unit.

We began the inspection by looking at the moving bed biofilm reactor. Mr. Brady informed me that there were only two that he knew of in the state. Essentially, the moving bed biofilm reactor consists of two concrete pits approximately twelve feet deep that are filled with honeycomb like plastic media about an inch in diameter and about an inch long. The effluent from the third lagoon cell is pumped into the moving bed biofilm reactor via a small lift station. It is then aerated by two blower units adjacent to the biofilm reactor. The wastewater travels to a weir structure before being discharged into the lagoon polishing cell.

There was foaming on the surface of the reactor during the inspection. I asked Mr. Brady about the foam and he informed me that any time there was a large temperature variance or if the facility experienced rainfall they had some foam on the surface. It appears that these variances slightly interfere with the microbial activity in the top layers of the biofilm.

We walked around the lagoons and I noted that the aerator in the second cell was functioning properly. There were some areas in the berms of the lagoons where burrowing animals had caused some minor damage. Mr. Brady informed me that Strickland Engineering does retain the services of a trapper who serves the WWTF's that they contract operate and that he was scheduled to come to Hillcrest Manor Subdivision in the very near future.

We proceeded to the discharge area and I observed the tablet chlorination unit, the chlorine contact chamber, the de-chlorination unit, and the discharge pipe. Mr. Brady did tell me that he often has problems with turtles getting stuck in the inlet to the chlorination unit or the inlet to the discharge pipe at the inlet. I suggested perhaps a large grid screen of some type could be placed over the opening of the inlet of the discharge pipe. The chlorination disinfection unit was not in operation as it is only required April 1 through October 31. The discharge on the day of inspection was very clear. There was no offensive odor and no trash or bottom deposits, only a little algae growth. The receiving stream had a low flow, but the water was clear with no odor.

## Sampling and Monitoring

The appropriate sampling materials were taken on the inspection, including a copy of the Missouri Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. The results of the field tests are in the following table.

Outfall 001-Grab Sample		
Parameter	Result	Units
pH	7.6	SU
Temperature	12.6	°C
Dissolved Oxygen	12.27	mg/L

A grab sample was taken at the discharge structure for the parameters listed in the Missouri State Operating Permit. I delivered them to the Cape Girardeau County Health Department for the courier to deliver to the Environmental Services Program for analysis. The results of the Environmental Services Program analysis were not available at the time this report was written.

## Compliance Determination

Based upon observations made at the time of the inspection and a review of Discharge Monitoring Reports in MoCWIS, the facility was found to be in compliance with the Missouri Clean Water Law, the Clean Water Commission Regulations, and Missouri State Operating Permit MO-0135011.

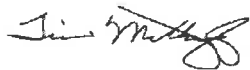
## Recommendations

No recommendations at this time.

## Comments

I found this site very clean and well maintained. I would like to thank Mr. Brady for his time and assistance during the inspection.

SUBMITTED BY:



---

Tim Mattingly  
Environmental Specialist III  
Southeast Regional Office

REVIEWED BY:



---

Arthur Goodin, CHMM  
Chief, Water Pollution Control Unit  
Southeast Regional Office



**Attachment #1-Photos 1 through 3**



**Photo #:** 001  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This is a photo of the primary cell of the lagoon system at Hillcrest Manor Subdivision.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 002  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** The second cell of the lagoon serving Hillcrest Manor Subdivision. The aerator was fully functional.

**Date:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 003  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** A photograph of the third cell of the Hillcrest Manor Subdivision. The pipe seen is for emergency maintenance on the second or third cells.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



**Attachment #2-Photos 4 through 6**



**Photo #:** 004  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This small lift station is located between cells two and three and pumps wastewater from cell three to the moving bed biofilm reactor.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 005  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This is a photo of the moving bed biofilm reactor. The foam seen here is minimal, only occurring during extreme temperature fluctuations or periods of rain.

**Date:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 006  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** These are the two blowers that provide the air for the moving bed biofilm reactor. Their usage alternates between the two.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



Attachment #3-Photos 7 through 9



**Photo #:** 007  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** A picture of the internal components of the individual blowers.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 008  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This is a photograph of the exterior of the weir box. The wastewater travels from the moving bed biofilm reactor to this structure.

**Date:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 009  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This is the interior of the weir box.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



Attachment #4-Photos 10 through 12



**Photo #:** 010  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** The pipe in the center of the circle is the pipe through which the wastewater travels from the weir box into the polishing cell.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 011  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This photo is a view of the polishing cell.

**Date:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 012  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This is a photograph of the chlorine contact chamber. The blue box at the top of the picture is the tablet chlorinator.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



Attachment #5-Photos 13 through 15



**Photo #:** 013  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** The blue box in this picture is the tablet de-chlorination unit. Obviously, the facility's outfall sign is also seen.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 014  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This photo show outfall #001 for the facility. The effluent was clear with no odor.

**Date:** 2/28/2017  
**Program:** WPC Unit



**Photo #:** 015  
**By:** Tim Mattingly  
**Facility:** Hillcrest Manor  
**Permit:** MO-0088072  
**Location:** Cape Girardeau County

**Description:** This is a picture of the receiving stream downstream of the WWTF. It had a low flow with a little algae growth. This stream also receives drainage for the subdivision just prior to the area where this photo was taken.

**Date Taken:** 2/28/2017  
**Program:** WPC Unit