



**Region 6 Compliance Assurance and Enforcement Division
INSPECTION REPORT**

Inspection Date(s):	9/12/2018		
Media:	Water		
Regulatory Program(s)	CWA – NPDES		
Company Name:	Village of Cimarron		
Facility Name:	Cimarron Wastewater Treatment Plant		
Facility Physical Location:	Off Highway 58 approximately one-mile southeast of the Village of Cimarron		
(city, state, zip code)	Cimarron, NM 87714		
Mailing address:	P.O. Box 654		
(city, state, zip code)	Cimarron, NM 87714		
County/Parish:	Colfax County		
Facility Contact:	Leo Martinez	Mayor	
	villageadmin@villageofcimarron.net		
FRS Number:	110064621137		
Identification/Permit Number:	NM0031038		
Media Number:			
NAICS:	221320		
SIC:	4952		
Personnel participating in inspection:			
Amy Andrews, P.E.	USEPA/6EN-WMH	Environmental Engineer	214-907-0638
Shawn Jeffrey	Village of Cimarron	Clerk Administrator	575-376-2232
Damian Casias	Village of Cimarron	Public Works Supervisor	575-643-5735
EPA Lead Inspector Signature/Date			
	Amy Andrews		Date
Supervisor Signature/Date			
	Carol Peters		Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

Environmental Protection Agency (EPA) Region 6 Inspector, Amy Andrews, arrived at the Village of Cimarron Village Hall at 11:20 AM on September 12, 2018 for an unannounced inspection of the Village of Cimarron Wastewater Treatment Plant (WWTP). I met with Ms. Shawn Jeffrey, the Village of Cimarron Clerk Administrator, and Mr. Damian Casias, the Village of Cimarron Public Works Supervisor. I presented my credentials to Ms. Jeffrey and Mr. Casias and informed them that this was an EPA inspection to determine compliance with the facility's National Pollutant Discharge Elimination System (NPDES) permit and the Clean Water Act (CWA). The inspection was conducted under the authority of the NPDES permit program, in accordance with the Federal CWA. This report is based on information supplied by Village of Cimarron representatives (the permittee), observations made by the EPA inspector, and records and reports maintained by the permittee and the EPA.

FACILITY DESCRIPTION

The Village of Cimarron WWTP is classified as a minor municipal discharge with a design flow of 0.0083 MGD. The discharge for the WWTP enters French Lake, a tributary to the Cimarron River in water quality segment 20.6.4.306 NMAC, at Latitude 36° 30' 28" North, Longitude 104° 53' 45" West. The Designated Uses for this segment of the river are: irrigation, warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

The Village of Cimarron has a population of approximately 950 people, however two subdivisions are not served by the WWTP and it is estimated that 540 hook-ups are served by the drinking water distribution system. Raw sewage flows by gravity through the collection system. One lift station is located on the south side of town. The raw sewage enters the WWTP through a 4" to 6" Parshall Flume where a wooden stick is used as the staff gauge to measure influent flow. The staff gauge affixed to the wall is coated with debris and is unreadable. The raw sewage is split between two lagoons. Both lagoons have a small "Solar Bee" mixing unit anchored in the center. The Solar Bees do not provide any aeration; they simply mix a small section of the solids and water in the lagoons. Each lagoon is roughly 2 acres in size followed by 2 small sand filters designated for each lagoon then through a 6-inch Parshall Flume to the outfall at French Lake. French Lake is currently owned by the Vermejo Ranch for irrigating cropland seeded with alfalfa. The Vermejo Ranch no longer approves of the Village discharging onto their land.

Approximately three feet of free board was observed in both lagoons. Stains show a highwater mark on the sidewalls is less than two feet from the top of the cement liners in the lagoons. During the winter months the evaporation rate is low, and the lagoons tend to fill. In the spring high winds and warmer temperatures lower the pond levels. Extremely high levels of solids are present in both lagoons. Around the edges, solids are so thick that plants have taken root and are growing in the lagoons. Facility personnel stated that solids have never been wasted. There are no sludge drying beds at the site. Facility personnel indicated they have been discussing using the solids to amend ranch land in the area. The

wastewater system does not have a disinfection system in place. The Village has completed the technical design and bid proposals to upgrade WWTP by dredging, adding a third pond. The goal of the project is to upgrade the facility to produce reuse quality effluent. They are currently seeking funding from New Mexico state sources.

Section II - OBSERVATIONS

The WWTP does not discharge regularly but is controlled manually by facility personnel based on the levels in the lagoons. The only discharge that has occurred since this permit went into effect on November 1, 2015 was on December 14 and 28, 2016. Facility personnel stated that when they do discharge, they initiate discharge by opening the manual gate valve (see photo 4 in Appendix 1), typically for 5 to 6 hours the first day and 5 to 6 hours a second day (not necessarily consecutive days). Samples are collected every hour and analyzed for pH and total residual chlorine (TRC). A grab sample is collected at the beginning of the day on every day of discharge and sent to Hall Environmental Laboratory in Albuquerque via UPS for analysis of 5-day biochemical oxygen demand (BOD5), total suspended solids (TSS), and Escherichia coli (E. coli). Whole effluent toxicity (WET) testing is sampled by grab sample at the end of the discharge, usually around 11:00 AM. Dilution water is collected for the WET testing from the receiving water on the day of the discharge as well as the day after the discharge.

Facility personnel indicated that during and after the lagoon renovation they intend to remove sludge from the lagoons, dry the sludge onsite, and give away dried biosolids to local ranchers as compost. This would be a change in the sewage sludge disposal method, and the permittee is required to give prior notice to the EPA of this change, in accordance with *NPDES Permit NM0031038, Part IV, Element 1, Section I.A.4. and 40 CFR Part 122.41(l)(l)(iii)*. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with *40 CFR Part 122.62(a)(l)*. Additionally, permittee **must** comply with all testing and monitoring requirements, pathogen control, vector attraction reduction requirements, and must have a certification statement as described in *NPDES Permit NM0031038, Part IV, Element 1. Requirements for Land Application and Section 405 of the CWA*.

Section III – AREAS OF CONCERN

Requirement 1

NPDES Permit NM0031038, Part III: Standard Conditions B.3. Proper Operation and Maintenance a. *The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit.*

Concern 1

The lagoon liner and the lagoon freeboard concrete are cracking and visually appear to be failing in several locations (see Photos 2 and 3 in Appendix 1) with weeds growing out of the cracks. There is an abundance of algae in the lagoons, sludge wasting has never occurred, and due to the constant mixing of the SolarBees, there is a high likelihood of solids flowing out the outfall during discharge events.

Requirement 2

NPDES Permit NM0031038, Part I: C. Monitoring and reporting (Minor Dischargers): *Monitoring results must be reported to EPA...*

1. *Reporting periods shall end on the last day of the months March, June, September, and December.*

2. *The permittee is required to submit regular quarterly reports as described above postmarked no later than the 15th day of the month following each reporting period.*

NPDES Permit NM0031038, Part III: A.2. Duty to Comply: *The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and its grounds for enforcement action; for permit termination; revocation and reissuance, or modification; or for denial of a permit renewal application.*

Concern 2

Discharge Monitoring Reports (DMRs) were not received for the periods below:

- 11/30/2015
- 7/31/2016 to 9/30/2017 – this includes the month of 12/31/2016, in which the only discharge occurred
- 11/30/2017 to 1/31/2018

Even though the reporting period is over, the permittee needs to go back and report overdue data.

Requirement 3

NPDES Permit NM0031038, Part I, Section A.1. Effluent Limits, Table 1: BOD5, TSS and E. coli.:

PARAMETER	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
	Mass (lbs/ day, unless noted)			Concentration (mg/L, unless noted)			Measurement Frequency	Sample Type
	30 Day Avg.	Daily Max	7 Day Avg.	30 Day Avg.	Daily Max	7 Day Avg.		
Flow (1)	0.0083	0.0083	0.0083	N/A	N/A	N/A	1/week	Grab (2)
BOD5	2.1	***	Report	30	***	45	1/week	Grab (2)
TSS	6.2	***	Report	90	***	135	1/week	Grab (2)
Percent Removal (minimum), BOD5	≥85%	***	***	***	***	***	1/week	Calculation (3)
Percent Removal (minimum), TSS	≥65%	***	***	***	***	***	1/week	Calculation (3)
E. coli Bacteria (4)	***	***	***	126	410	***	1/week	Grab (2)
TRC (5)	***	***	***	***	11 µg/L	***	1/week	Instantaneous Grab

Footnotes Table 1:

1. MGD

2. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.

3. Percent removal is calculated using the following equation : $\{[(\text{average monthly influent concentration} - \text{average monthly effluent concentration})] \div [\text{average monthly influent concentration}]\} \times 100$.

4. Bacteria reporting units MUST be either cfu/100mL or MPN.

5. Regulations at 40 CFR Part 136 define "instantaneous grab" as analyzed within 15 minutes of collection. The effluent limitation for TRC is the instantaneous maximum and cannot be averaged for reporting. Chlorine shall be monitored when used for disinfection and/or when used in any treatment process at the facility and shall be reported in µg/L.

Concern 3A

Effluent measurement frequency is required at once per week, when discharging. During the discharge on 12/13/2016 and on 12/28/2016, two grab samples were collected from the effluent and sent to Hall Environmental for BOD5, TSS, and E. Coli. Copies of these laboratory reports were received during the inspection. Results and inspector's calculations from the laboratory reports are shown as follows:

		BOD5	E. coli	TSS
Sample Date	12/13/2016	65	24196*	48
	12/28/2016	70	5794*	74
30-day average	Result	67.5	11,840*	61
	Discharge Limit	30	126	90
Daily Max	Result	NR	24,196*	NR
	Discharge Limit	NR	410	NR
7-day average	Result	70	NR	74
	Discharge Limit	45	NR	135

NR = not required

*Samples analyzed outside of required holding time.

Discharge permit limits have been exceeded for the 30-day average and 7-day average BOD5, as well as the 30-day average and daily max for E. coli. Please note that 7-day and 30-day averages are averages of samples collected, and cannot be averaged with no-discharge days; BOD5 and TSS are arithmetic averages and E. coli is a geometric average. Copies of flow records were not received during the inspection, therefore loading rates could not be checked.

Concern 3B

Permittee stated that samples of the influent have never been collected, thereby making it impossible to calculate percent removal for BOD5 and TSS.

Concern 3C

The holding time for E. coli is 8 hours from time of sample collection to the start of sample preparation for analysis. Shipping samples to a laboratory via overnight UPS is not appropriate for the analysis of this pollutant.

Requirement 4

NPDES Permit NM0031038, Part I, Section A.1. Effluent Limits, Table 2:

Effluent Characteristics		Discharge Limitations			
		Standard Units		Monitoring Requirements	
Pollutant	STORET Code	Minimum	Maximum	Measurement Frequency	Sample Type
pH (su)	00400	6.6	9.0	1/Week	Instantaneous Grab (1)

Footnotes for Table 2:

(1) Instantaneous grab a field measurement that is the analysis of a sample less than 15 minutes from the time of collection.

NPDES Permit NM0031038, Part III, D.5. Additional Monitoring by the Permittee: *If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.*

Concern 4

pH bench sheets were not available at the time of inspection, and were not received by the inspector at a later date, however, water testing done during maintenance of the SolarBees (see Appendix 2) suggests that the pH of the water/slurry in the lagoons ranged from 8.92 to 9.89 on 11/8/2016, just

prior to the manually-initiated discharge on 12/14/2016. It should be noted that facility personnel stated that samples for pH and total residual chlorine (TRC) are analyzed every hour while discharging, and all results obtained from these analyses must be used to calculate DMR values.

Requirement 5

NPDES Permit NM0031038, Part III, C.5. Monitoring Procedures:

a. *Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.*

b. *The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instruments at intervals frequent enough to insure accuracy of measurements and shall maintain appropriate records of such activities.*

c. *An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.*

Concern 5

Permittee's pH monitor (see photo 1 in Appendix 1) does not meet the requirements of the method stated in 40 CFR 136.3. Facility personnel were not familiar with calibration of instrument, and instrument must be able to be calibrated and maintain said calibration for the duration of testing. No evidence was presented to show the existence of a quality control program for the analyses run by the permittee (pH and TRC).

Requirement 6

NPDES Permit NM0031038, Part I, Section A.1. Effluent Limits, Table 3:

Whole Effluent Toxicity Testing (48 Hr. NOEC) (1,2)				
Effluent Characteristic	Discharge Monitoring		Monitoring Requirements	
	30-Day Average Min	48-Hr Min	Frequency	Type
Daphnia pulex	Report	Report	Once/6 months	24-Hr. Composite
Pimephales promelas	Report	Report	Once/6 months	24-Hr. Composite

Footnotes Table 3:

(1) Monitoring and reporting requirements begin on the effective date of this permit.

(2) If all pass, reduce for years 2-5 to Daphnia pulex once/6months and Pimephales promelas to once/year. If any test fails, the frequency of testing returns to once/quarter for both species for the remainder of the permit.

NPDES Permit NM0031038, Part II, 2.d. Samples and Composites:

- i. *The permittee shall collect two flow-weighted composite samples from the outfall [001].*
- ii. *The permittee shall collect a second composite sample for use during the 24-hour renewal of each dilution concentration for both tests. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 6 degrees Centigrade during collection, shipping, and/or storage.*
- iii. *The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.*
- iv. *If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples the minimum number of effluent portions*

and the sample holding time are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 3 of this section.

Concern 6

Facility personnel stated that the whole effluent toxicity (WET) sample is collected as a grab sample, right before the end of discharge, usually around 11:00 AM. A grab sample of the receiving water is also collected on the day of the discharge as well as the day following discharge. The chain of custody which was sent with the samples states that the "sample time" was from 0500 AM to 1100 AM, which facility personnel said was actually the time of discharge, not the time of sample, since the sample was a one-time grab. The sample is required to be collected as a 24-hour flow-weighted composite sample, meaning that a portion of the sample should be collected every hour as the facility is discharging, up to 24 hours. This is intended to be repeated on a second consecutive day of discharge and sent to the lab in a second shipment, in order to maintain holding times while the laboratory is running the test. Facility personnel stated that the sample collected on the second day is from the receiving water, after discharge (so the collected water is a mixture of receiving water and discharged water), which is not appropriate for use as the dilution water nor the effluent water in the 24-hour renewal of the WET testing. There is no documentation in the laboratory report about how the dilutions were created for the 24-hour renewal, and there is no mention of the minimum number of effluent samples, the minimum number of effluent portions, and the sample holding time being waived because the flow from the outfall ceased.

Requirement 7

NPDES Permit NM0031038, Part III C.6. Flow Measurements: *Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flow with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.*

Concern 7

The effluent flow meter (6-inch Parshall Flume) was not accessible during the inspection due to vegetation overgrowth. Facility personnel stated that the Flume has a staff gauge and that they use a conversion sheet to determine flow rates, however they also state that the Flume has never been calibrated. The influent Parshall Flume and staff gauge were heavily coated with dried debris. The staff gauge was unreadable. Operators indicated that a wooden stick is used to estimate the depth of the influent flow.

Section IV – FOLLOW UP

No information was received by EPA after exiting the Facility on 9/12/2018.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 4 photos taken 9/12/2018

Appendix 2 – SolarBee[®] Service Report from 11/8/2016

Appendix 1

Photograph Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Village of Cimarron Wastewater Treatment Plant		
City: Cimarron	County/Parish: Colfax	State: New Mexico



Photo File Name: DSCN0649.JPG

Date of Photo: 9/12/2018

Time of Photo: 1:14 PM

Photographer: Amy Andrews

Description: pH meter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Village of Cimarron Wastewater Treatment Plant		
City: Cimarron	County/Parish: Colfax	State: New Mexico



Photo File Name: DSCN0659.JPG

Date of Photo: 9/12/2018

Time of Photo: 1:36 PM

Photographer: Amy Andrews

Description: View of algae and lagoon freeboard concrete cracking with weeds growing out of cracks.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: Village of Cimarron Wastewater Treatment Plant		
City: Cimarron	County/Parish: Colfax	State: New Mexico



Photo File Name: DSCN0660.JPG

Date of Photo: 9/12/2018

Time of Photo: 1:39 PM

Photographer: Amy Andrews

Description: Second view of algae and lagoon freeboard concrete cracking with weeds growing out of cracks.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: Village of Cimarron Wastewater Treatment Plant		
City: Cimarron	County/Parish: Colfax	State: New Mexico



Photo File Name: DSCN0664.JPG

Date of Photo: 9/12/2018

Time of Photo: 1:52 PM

Photographer: Amy Andrews

Description: Manual gate valve used to initiate discharge.

Appendix 2
SolarBee© Service Report from 11/8/2016

Medora Corporation



Service Report From November 08, 2016

Village of Cimarron Cimarron Wastewater Treatment Ponds



For questions about this report, machine service, or water quality issues, please contact
SolarBee Customer Service at 866-437-8076 or customerservice@solarbee.com

SolarBee Water Quality Testing is intended to provide general indications of water quality and slurry / sludge / sediment profiles at the time of testing. In most cases, there are not enough test points for statistical significance. This information should not be considered a substitute for larger, more comprehensive system studies that SolarBee, Inc. and other companies can provide at additional cost.

GPS positions are recorded for all test stations and SolarBee machines.
Depending on conditions, there can be a positioning discrepancy of +/-60 feet at any given time.

Objective(s)

The primary goal is to reduce the volatile sludge depth levels but, the unit will also improve the dissolved oxygen levels, improve effluent water quality and reduce/eliminate odors.

Machine Intake Setting Information

#	Serial Number	Machine Model	Intake Setting (ft)	Weight Bearing (ft)	Description
1	4019121	SB2500	1.00	6.00	SB 1
2	4344601	SB4000	1.00	4.83	SB 2

Service Call Summary**Reason For Service Call:**

Beekeeper Service Program: Scheduled maintenance and water quality testing.

Service Call Summary:

A complete inspection of both machines and all electronics was performed, as well as general maintenance and cleaning. Everything was confirmed to be operating properly and in good condition at the crew's departure.

Water quality testing was performed at designated areas; the data is recorded below.

Crew: Preston Loveless, Cody LaGue.

Water Quality Testing

Test Station #C1T1	
Start Time:	3:41 PM
GPS Location:	36.50755,-104.89621
Secchi Depth (ft.):	0.83
Top Of Slurry (ft.):	Bottom
Weight Bearing (ft.):	4.92
Total Depth (ft.):	5.83
Water Color:	Olive Green
Slurry Color:	Dark Brown
Sediment Color:	Dark Brown

Test Station #C1T2	
Start Time:	9:50 PM
GPS Location:	36.50735,-104.89699
Secchi Depth (ft.):	0.92
Top Of Slurry (ft.):	4.75
Weight Bearing (ft.):	5.17
Total Depth (ft.):	5.92
Water Color:	Olive Green
Slurry Color:	Dark Brown
Sediment Color:	Dark Brown

Depth (meters, feet)
(surface) 0
(0.30 m) 1
(0.61 m) 2
(0.91 m) 3
(1.22 m) 4

Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
12.32	13.13	9.28	1.310
12.42	13.19	9.28	1.308
11.72	9.99	9.14	1.325
10.74	5.28	9.02	1.342
9.94	2.59	8.94	1.350

Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
12.57	14.72	9.27	1.298
12.51	15.61	9.28	1.302
11.52	9.46	9.09	1.332
10.54	4.82	9.89	1.334
10.03	2.19	8.92	1.340

Water Quality Testing

Test Station #C2T1	
Start Time:	2:57 PM
GPS Location:	36.50729,-104.89552
Secchi Depth (ft.):	0.58
Top Of Slurry (ft.):	Bottom
Weight Bearing (ft.):	5.25
Total Depth (ft.):	5.92
Water Color:	Olive Green
Slurry Color:	Dark Brown
Sediment Color:	Dark Brown

Test Station #C2T2	
Start Time:	3:11 PM
GPS Location:	36.50754,-104.89471
Secchi Depth (ft.):	0.58
Top Of Slurry (ft.):	5.00
Weight Bearing (ft.):	5.17
Total Depth (ft.):	5.92
Water Color:	Olive Green
Slurry Color:	Dark Brown
Sediment Color:	Dark Brown

Depth (meters, feet)
(surface) 0
(0.30 m) 1
(0.61 m) 2
(0.91 m) 3
(1.22 m) 4

Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
11.32	11.76	9.31	1.752
11.36	13.10	9.37	1.755
10.91	12.44	9.35	1.754
10.51	9.31	9.33	1.765
9.77	5.06	9.28	1.780

Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
12.65	19.32	9.64	1.727
12.41	19.28	9.63	1.735
11.75	14.87	9.58	1.750
10.17	10.69	9.80	1.767
9.74	7.83	9.41	1.767