United States Environmental Protection Agency

Region 6 - Enforcement & Compliance Assurance Division

INSPECTION REPORT

Inspection Date(s):	3/3/2020	
Media Program:	Water	
Regulatory Program(s)	CWA – NPDES	
Company Name:	**City of Santa Fe**	
Facility Name:	**Santa Fe Wastewater Treatment Plant**	
Facility Physical Location:	73 Paseo Real	
(city, state, zip code)	Santa Fe, NM 87507	
Mailing address:	73 Paseo Real	
(city, state, zip code)	Santa Fe, NM 87507	
County/Parish:	Santa Fe County	
Facility Phone Number	505-955-4650	
Facility Contact:	Efren Morales	Wastewater Plant Superintendent
	emmorales@santafenm.gov	
FRS Number:	110064609044	
Identification/Permit Number:	NM0022292	
Media Identifier Number:		
NAICS:	221320	
SIC:	4952	

Personnel participating in inspection:		
Amy Andrews, P.E.	USEPA/6EN-WMH	Environmental Engineer
Barbara Cooney	NMED-SWQB Point Source Section	Environmental Specialist
Michael Dozier	City of Santa Fe	Wastewater Division Director
Alonzo Arrieta	City of Santa Fe	Wastewater Shift Lead
Patricia Rosacker	City of Santa Fe	Laboratory Manager

EPA Lead Inspector Signature/Date	AMY ANDREWS Digitally signed by AMY ANDREWS DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=AMY ANDREWS, 0.9.2342.19200300.100.1.1=68001003655888 Date: 2020.04.30 09:12:51 -06'00'	
	Amy Andrews	Date
Supervisor Signature/Date	CAROL PETERS-WAGNON Digitally signed by CAROL PETERS-WAGNON DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=CAROL PETERS-WAGNON, 0.9.2342.19200300.100.1.1=68001003652679 Date: 2020.04.30 11:12:18 -05'00'	
	Carol Peters	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

Environmental Protection Agency (EPA) Region 6 inspector, Amy Andrews, and New Mexico Environment Department (NMED) /Surface Water Quality Bureau (SWQB) inspector, Barbara Cooney arrived at the City of Santa Fe Wastewater Treatment Plant (WWTP) at 9:54 AM on March 3, 2020 for an unannounced inspection. We met with Michael Dozier/City of Santa Fe Wastewater Division Director and Alonzo Arrieta/City of Santa Fe Wastewater Shift Lead. I presented my credentials to Mr. Dozier and informed him 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 the City of Santa Fe representatives (the permittee), observations made by the EPA inspector, and records and reports maintained by the permittee and the EPA.

FACILITY DESCRIPTION

The Santa Fe WWTP is classified as a major municipal discharger under the CWA, Section 402, of the NPDES permit program and is authorized to discharge up to 13 million gallons per day (MGD) based on design flow, with an actual discharge around 6 MGD. Discharge is to the Santa Fe River in Waterbody Segment 20.6.4.113 (NMAC, State of New Mexico Standards for Interstate and Intrastate Surface Waters) of the Rio Grande Basin. This segment includes the designated uses of irrigation, livestock watering, wildlife habitat, primary contact and coolwater aquatic life.

The Santa Fe WWTP serves a year-round population of approximately 75,000 residents, plus the summer tourist season which causes increased flow to the WWTP. The plant is a conventional treatment process with an original design capacity of 13 MGD, however engineers have estimated the current design capacity at only 9 MGD, due to equipment failures. The average flow is around 6 MGD.

The plant utilizes a conventional treatment process. The headworks includes a rock collector, a fine barscreen, rag press, and grit removal system. The grit removal system consists of a grit tank, where flows are aerated to allow inorganic waste to settle while allowing organics to float and pass through to a wet well. The contents of this tank are pumped back to the grit separator, washed to remove the organic matter, and with the help of an auger is fed onto a conveyor belt and dropped into a dumpster for disposal. Flows from the grit chamber enter two primary clarifiers via a splitter box. The lighter material floating on the top is removed by a skimmer arm and the solids at of the clarifier are pumped to the digester.

Effluent from the primary clarifiers goes to a rapid mix tank where various recycle flows and the Return Activated Sludge (RAS) are mixed with the primary effluent and mixed liquor before entering the Bio-selector for further treatment. The Bio-selectors are four basins that can be aerobic, anaerobic, or a

combination of both. The Bio-selector Effluent flows to the aeration basins. The aeration basins are a dual-racetrack design with alternating aeration and mixing which cause nitrification and then denitrification to remove ammonia and nitrates. The nitrification process utilizes dissolved oxygen, fed through fine bubble diffusers, to change ammonium to nitrite. Ammonia can be stripped off with increased air or converted from ammonia to nitrites by bacteria (microorganisms) called Nitrosomonas. The nitrite continues through the basin to the anoxic zone and is broken down from nitrite to nitrate by bacteria and then nitrate to nitrogen gas, nitrous oxide, carbon dioxide (CO2), and water.

The Mixed liquor flows into six secondary clarifiers to allow solids to settle to the bottom of the tank. The effluent water flows over the weirs and out of the tanks. The bacteria/microorganisms that have settled are pulled from the bottom of the clarifier, via suction pickup tubes, on the traveling bridges called Clarivacs on secondary clarifiers 1 through 4. The 5 and 6 clarifiers have skimmers and scrappers that remove the floating and settled solids. After the aeration basins, flow from the secondary clarifiers is sent through two channels that used to be sand filters and to the three disc filters. Ultra-violet light is used to disinfect the treated effluent and the post-aeration basin is used to add dissolved oxygen back into the water prior to discharging to Outfall 001 and into the receiving waters.

Treated and disinfected domestic wastewater is periodically reused as irrigation water for the Santa Fe Country Club, the Santa Fe Municipal Recreation Complex, and/or the Marty Sanchez Golf Club and is also sold at a standpipe to contractors for use in construction and dust control.

The Santa Fe WWTP uses dissolved air flotation (DAF) to thicken their biosolids (sludge). The DAF operates by pressurizing water above atmospheric pressure in a Hydrostatic (pressure) Tank. The pressurized water is introduced to a header along with pumped sludge and polymer before entering the DAF tanks, which are at atmospheric pressure. The difference in pressures causes air to come out of solution as fine bubbles, which rise to the surface of the DAF tank. The sludge attaches to the fine bubbles and is floated to the surface where it is thickened. There are three DAF units, the third one was added in 2009 for redundancy and is located in a separate building. The thickened sludge is then sent to the two new digesters that came online in February 2020. Digester solids can be stored in a storage tank before being sent to the belt press and either surface injected into the adjacent field located south of the WWTP, taken to the Rio Rancho Landfill, or sold to the public as compost (12% sludge mixed with wood chips/hay).

Section II – OBSERVATIONS

As of the date of this inspection, two new digesters had been brought online the week previously with plans for bringing online a supervisory control and data acquisition (SCADA) system for those digesters within the next month. The facility does not currently have a SCADA system but they recently hired a new person to fill the role of Automation and Security Specialist to eventually bring the whole plant online. There are additional plans to install ten dissolved oxygen meters at various locations along the treatment train with the purpose of full treatment control via the SCADA system.

The two oxidation ditch aeration basins are currently being run in series because the gate on the north basin failed in May of 2018. As of the date of this inspection, the replacement of the gate was still in the middle of the bidding process for contractor selection. The north basin will need to be fully drained for gate replacement. In addition to the north gate, the south gate will be replaced as well as the turbo blowers and the mixers. Secondary clarifiers 5 and 6 suffered a catastrophic failure during mid-2019 and are still offline.

Historically, the Santa Fe WWTP has struggled with a filamentous foaming issue in the winter due to cold weather temperatures. Recently they have been able to address these issues with the addition of BioGenesis added at the anoxic inlet. Facility personnel report that they had completely eradicated the filamentous foam, however during the replacement of the digesters, too many solids were fed back into the aeration basin, and it caused them to foam again.

The Santa Fe WWTP is currently under two Administrative Orders:

- USEPA Docket No. CWA-06-2019-1773, issued March 29, 2019, for failure to meet the permit effluent limits for E. coli bacteria at Outfall 001 from March 2017 – January 2019.
    - A response from the facility was received by EPA on June 4, 2019
- USEPA Docket No. CWA-06-2019-1818, issued September 26, 2019, for failure to meet the permit effluent limits for carbonaceous biochemical oxygen demand (CBOD), total suspended solids (TSS) and E. coli bacteria at Outfall 001 from January 2019 – June 2019.
    - A response from the facility was received by EPA on October 31, 2019.

Effluent limit violations appear to be caused by equipment failures and difficulties balancing biomass during basin cleanouts and startups. The facility is hoping for the oxidation ditch modifications to be complete before the winter temperatures cause additional filamentous issues (October 2020), however the blowers won't be replaced until late 2021 (see Appendix 2).

Section III – AREAS OF CONCERN

Requirement 1

NPDES Permit NM0022292, 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 1A

Equipment failures include blowers in the aeration basin, the aeration basin gates, secondary clarifiers 5 and 6, and reoccurring issues with filamentous foaming.

Concern 1A

Standard Operating Procedures (SOPs) for the plant are either out of date or unavailable. As equipment is replaced, it is critical to update the SOPs to be relevant to current conditions and ensure that all operators are clear on the proper operation of the plant.

Requirement 1

NPDES Permit NM0022292, Part III: Standard Conditions 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 flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.*

Concern 1

The staff gauge at the effluent Parshall Flume had algae buildup and was unable to be read. Facility personnel were unable to demonstrate that they check the electronic flow meter against the primary flow meter on a regular basis.

EPA Region 6 inspector, Amy Andrews, conducted a closing conference at the City of Santa Fe Wastewater Treatment Plant at 3:10 PM on March 3, 2020 for the inspection. During the closing conference, Areas of Concern noted above were discussed.

Section IV – FOLLOW UP

No additional information was received by EPA after exiting the Facility on March 3, 2020.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 3 photos taken 3/3/2020
Appendix 2 – Aeration Improvements Project Schedule – Provided by the City of Santa Fe

Appendix 1
Photograph Log

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Santa Fe Wastewater Treatment Plant		
City: Santa Fe	County/Parish: Santa Fe	State: New Mexico

Photo File Name: DSCN1273.JPG
Date of Photo: 3/3/2020
Time of Photo: 3:02 PM
Photographer: Amy Andrews
Description: Oxidation ditch-style aeration basins.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Santa Fe Wastewater Treatment Plant		
City: Santa Fe	County/Parish: Santa Fe	State: New Mexico

Photo File Name: DSCN1278.JPG
Date of Photo: 3/3/2020
Time of Photo: 3:18 PM
Photographer: Amy Andrews
Description: Residual from filamentous foaming issue on the aeration basins.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

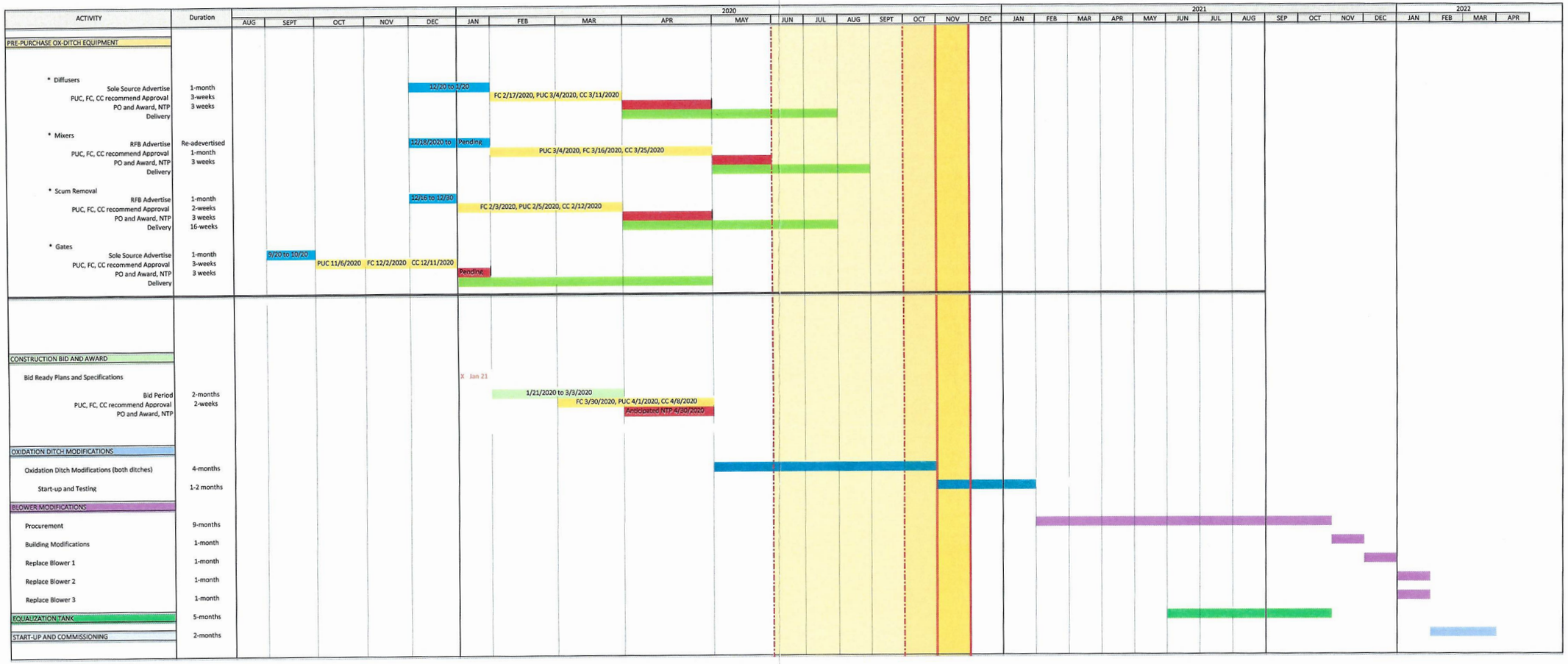
Photo No. 3

Location: Santa Fe Wastewater Treatment Plant		
City: Santa Fe	County/Parish: Santa Fe	State: New Mexico

Photo File Name: DSCN1283.JPG
Date of Photo: 3/3/2020
Time of Photo: 3:25 PM
Photographer: Amy Andrews
Description: Catastrophic chain failure in the secondary clarifiers.

Appendix 2
Aeration Improvements Project Schedule – Provided by the City of Santa Fe

CITY OF SANTA FE

AERATION IMPROVEMENTS PROJECT SCHEDULE

Pre-Purchase of Equipment