Exhibit No. 6

MAWC – Exhibit 6
Brian W. Eisenloeffel
Surrebuttal Testimony
File No. WA-2021-0376

Exhibit No.:	
Issues:	Eureka Acquisition
Witness:	Brian W. Eisenloeffel
Exhibit Type:	Surrebuttal
Sponsoring Party:	Missouri-American Water Company
Case No.:	WA-2021-0376
Date:	December 17, 2021

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WA-2021-0376

SURREBUTTAL TESTIMONY

OF

BRIAN EISENLOEFFEL

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

Exhibit No. 6
Date 1/20/22 Reporter BJB
File No.

SURREBUTTAL TESTIMONY
BRIAN W. EISENLOEFFEL
MISSOURI AMERICAN WATER COMPANY
CASE NO.: WA-2021-0376

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AFFIDAVIT

I, [Witness Name], under penalty of perjury, and pursuant to Section 509.030, RSMo, state that I am [Job Title] for [Company Name], that the accompanying testimony has been prepared by me or under my direction and supervision; that if inquiries were made as to the facts in said testimony, I would respond as therein set forth; and that the aforesaid testimony is true and correct to the best of my knowledge and belief.

Brian Eisenloeffel

December 17, 2021
Dated

SURREBUTTAL TESTIMONY

BRIAN W. EISENLOEFFEL

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Brian W. Eisenloeffel, and my business address is 727 Craig Road, St. Louis, MO 63141.

Q. Are you the same Brian W. Eisenloeffel who previously submitted direct testimony in this proceeding?

A. Yes.

II. OTHER TOPICS

Q. On page three of his Rebuttal Testimony, Staff witness Curt Gateley discusses certain records the Staff obtained from the Missouri Department of Natural Resources (MDNR) concerning the Eureka sewer system. Are you familiar with the DNR inspection reports referenced by Staff witness Gateley?

A. Yes. The referenced MDNR inspection reports and Letters of Warning were obtained by Missouri American Water Company (MAWC) through the same process used by Staff, in in a formal request May 13, 2020. This is a standard part of our due diligence process on all potential acquisitions by MAWC.

Q. Is the conclusion of Staff witness Gateley regarding the "condition of the sewer collection and treatment systems" based on these records accurate?

A. No. A review of files from the MDNR does not provide an accurate picture of the condition of the wastewater system. The letters and inspection reports must be considered in full to provide context. It would not be appropriate to pick select events reported to the MDNR

on the operation of the Eureka wastewater system and make a condition assessment.

Q. In Staff witness Gateley's Rebuttal Testimony (p. 3), he states, "The sewage treatment facility has failed to meet permit effluent limitations since at least October 2016 for biological oxygen demand," and sites a MDNR inspection report, dated August 20, 2019. Is this an accurate statement?

A. No. The August 20, 2019 letter (attached here as **Schedule BWE-8**) is a Referral Notice of Violation (RNOV) to the City of Eureka summarizing a series of events, actions, and inspections. In the inspection report included with the letter, the MDNR describes the system and its compliance history, makes new observations as part of the inspection, makes an assessment, and identifies permit violations and required actions.

Q. Did the Eureka system fail to meet permit "effluent limitations," as alleged?

A. No. "Effluent limitations…biological oxygen demand" refers to biological oxygen demand (BOD) effluent limits found in Table A-1 within the operating permit attached as **Schedule BWE-2** of my Direct Testimony. The MDNR does not reference any findings of biological oxygen demand (BOD) exceedances in the RNOV. The MDNR does cite BOD and total suspended solids (TSS) "removal efficiencies."

Q. Why is this distinction important?

A. Limits and efficiencies are two completely different parameters found within the operating permit attached as **Schedule BWE-2** of my direct testimony. On July 10, 2019, the City of Eureka met with MDNR for compliance assistance. A MDNR memorandum documenting the meeting is attached as **Schedule BWE-9**. In this meeting, as well as in the RNOV, the City contends that the problem is a diluted influent or sewage that is too

"clean" to meet a percent removal standard. The MDNR representatives at that meeting agreed with this assessment.

Q. Is diluted influent to a wastewater plant a good indication of the condition of the sewer collection and treatment system?

A. No. Diluted influent at the sewer plant is an indication that a large amount of clean water is entering a sewer system. Common sources would be a water main break, a large customer with very clean effluent, or inflow and infiltration (I&I). In the July 10, 2019 compliance meeting (**Schedule BWE-9**) the MDNR suggests that a permit modification could put the City back in compliance. This suggestion was confirmed by MAWC in an email with MDNR Compliance Chief, Kristi Savage-Clarke (see **Schedule BWE-10**). In that email, the calculations and regulations are explained in detail. Part of the calculations are used to quantify inflow and infiltration. The Eureka inflow and infiltration calculations are below "excessive", as established by federal regulation limits, making the system eligible for such a change. A compliance violation that can be fixed with a change to the permit adjusting how BOD is measured does not indicate that a system is in poor condition.

Q. In his summary of the condition of the wastewater system on p. 4 of his Rebuttal Testimony, Staff witness Gateley makes several comments regarding I&I. Are those statements and assumptions accurate?

A. No. Staff witness Gateley references the RNOV (**Schedule BWE-8**) incorrectly in drawing a conclusion as to the condition of the wastewater systems. The RNOV cites the City with a reporting violation as a condition of its operating permit (**Schedule BWE-2**) to my Direct Testimony. At no time does the MDNR conclude that I&I is "excessive," as staff witness Gateley states. In fact, MDNR Compliance Chief, Kristi Savage-Clarke comes to the

opposite conclusion. She finds that I&I is not excessive per the federal regulations and her calculations (See **Schedule BWE-10**).

Q. Also, in his summary of the condition of the wastewater system on p. 4 of his Rebuttal testimony, Staff witness Gateley makes several comments regarding sanitary sewer overflows (SSO). Are those statements and assumptions accurate?

A. No. Two events were referenced specifically – December of 2015 and April of 2017. These were historic events with flood levels on the Meramec River reaching never before seen levels, according to records from the National Weather Service (See **Schedule BWE-11**). The floods damaged homes and businesses and forced the closure of interstates.

Moreover, the RNOV (**Schedule BWE-8**) is cited as the source and incorrectly used as a condition assessment. In this document, the MDNR again sites the City of Eureka for reporting violations with respect to the December 2015 and April 2017 floods. Historic flooding in the region and the failure to report this to the MDNR is not an indication of a wastewater system in poor condition.

Q. Staff witness Gateley references five other SSO events; "March of 2015, November of 2016, April, July, and August of 2019" (Reb., p. 4). What is the cause of these events?

A. The March 2015 event was from a broken force main. The November 2016 event was from an equipment malfunction where grease in a lift station caused a level sensor to malfunction, resulting in a pump not coming on and the lift station overflowed. Neither of these events are indications of a sewer system not in good condition.

The three 2019 events are all reported by the City as events of local flooding within the City due to excessive rain. Flooding is not an indication of a sanitary sewer in a bad

condition. According to the United States Environmental Protection Agency (EPA) website, the EPA estimates that 23,000 – 75,000 SSOs occur annually nationwide. For a couple to occur over a multiyear period in a wastewater system the size of Eureka's is not desirable, but is accepted and must be reported to MDNR to maintain compliance.

Q. Is the City of Eureka taking measures to address flooding and the impact it has on the wastewater system?

A. Yes. The City of Eureka is in the process of permitting a levee and other flood control projects to protect the community from future flooding.

Q. Is the publicly available information used by Staff witness Gateley being properly used to demonstrate the condition of the Eureka sewer collection and treatment systems?

A. No. MAWC believes that the Eureka sewer collection system and the treatment systems are in good condition. The sewer treatment plant is operating and functioning as it was designed and permitted by the MDNR to do. The BOD information is not properly used by Staff witness Gateley. It is not an indication of plant performance as was implied. The claim by Staff witness Gateley of "excessive I&I" is also inaccurate. The witness fails to cite any sources, data or studies to support this. The MDNR does not make any conclusions that support this in the documents I have reviewed. Staff witness Gateley also uses SSOs associated with historic floods to somehow conclude that the wastewater systems are not in good condition, although five of the seven SSOs referenced are associated with flooding. MAWC believes that the Eureka wastewater system is in good condition.

Q. The Staff Recommendation attached (Schedule CBG-r2 to Staff witness Gateley's Rebuttal Testimony, p. 19) provides observations of the sewer system. Are those

observations accurate today?

A. No. Since the time Staff observed the wastewater plant, the City has replaced the air lines from the blower building to the lagoon to eliminate several air leaks. In addition, work was done on the basin to address the "large areas of surface boils" included in Staff's observations. MAWC employees noted on a recent visit that the repairs have resulted in reduced air flow requirements, allowing the system to operate on one blower rather than multiple blowers as it had in past visits.

Q. Does this conclude your surrebuttal testimony?

A. Yes.

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

CERTIFIED MAIL 9214 8969 0099 9790 1415 6176 82
RETURN RECEIPT REQUESTED

August 20, 2019

Mr. Craig Sabo, City Administrator
City of Eureka
100 City Hall Drive
P.O. Box 125
Eureka, MO 63025

REFERRAL NOTICE OF VIOLATION
WATER POLLUTION CONTROL BRANCH RNOV SL190028

Dear Mr. Sabo:

Staff from the Department of Natural Resources (Department) conducted an inspection on July 29, 2019 of the Eureka Wastewater Treatment Facility located at Truitt Drive, Eureka, Missouri in St. Louis County. The entity operates under the authority of Missouri State Operating Permit MO0039659.

The enclosed report documents the serious and significant violations that were identified. A Referral Notice of Violation (RNOV) is being issued for the violations.

This case is being referred to the Department's Water Pollution Control Branch (WPCB) enforcement for further action. If you have any questions regarding the status of the enforcement case or would like to meet with Department staff to discuss compliance requirements, please contact enforcement staff by mail at the Missouri Department of Natural Resources, Water Protection Program, ATTN: WPCB Compliance & Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, or by phone at (573) 751-1300.

Sincerely,

ST. LOUIS REGIONAL OFFICE

Dorothy Franklin
Regional Director

EJG/OVM/deb

Enclosures

c:

Missouri Department of Natural Resources
St. Louis Regional Office
Report of Inspection
Eureka Wastewater Treatment Facility
Truitt Drive, Eureka, Missouri 63025
St. Louis County
MO-0039659
August 20, 2019

Introduction

Pursuant to Section 644.026.1 of the Missouri Clean Water Law, I, Oscar Vazquez of the Missouri Department of Natural Resources (Department) St. Louis Regional Office (SLRO), conducted a routine water pollution compliance inspection of the Eureka Wastewater Treatment Facility (WWTF) located at Truitt Drive, Eureka, Missouri in St. Louis County on July 29, 2019. The City of Eureka (City or Permittee) is the owner and continuing authority of the Eureka WWTF, a Publicly Owned Treatment Works (POTW) operating under the Missouri State Operating Permit (MSOP) MO-0039659. This water pollution control inspection was conducted to determine the facility's compliance with the Missouri Clean Water Law, Missouri Clean Water Commission Regulations, and the MSOP MO-0039659. The inspection serves also as a follow-up to the Letter of Warning (LOW) issued by the Department on June 25, 2019 for significant violations of MSOP MO-0039659. This report presents the findings and observations made during the compliance inspection of the Eureka WWTF including file review, site visits, and communications with entity representatives.

Participants included:

Missouri Department of Natural Resources, St. Louis Regional Office

Oscar Vazquez	Environmental Engineer	(314) 416-2460
oscar.vazquez@dnr.mo.gov		

City of Eureka

David Ricks	WWTP Operator	(636) 938-5233
eurekawwtp@yahoo.com		

Entity Description and History

The Eureka WWTF is located at Truitt Drive, Eureka as shown in Figure 1 of Attachment #2 and is permitted with MSOP MO-0039659. The facility's permit was last issued on June 1, 2018. The permit will expire on September 30, 2022. MSOP MO-0039659 authorizes the discharge of treated facility effluent through Outfall #004. The wastewater treatment described under the permit consists of an influent lift station, three-cell aerated lagoon with fine-bubble air diffusers, Aquamats®, and recirculation pumps, ultraviolet (UV) disinfection, and effluent pump station. The sludge is retained in the lagoon. The facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater.

The facility has a permitted design flow of 2.8 million gallons per day (MGD) and an actual flow of 1.6 MGD and is authorized to discharge through Outfall #004. The facility's average reported monthly average flow between October of 2016 and May of 2019 is 1.52 MGD. The permit lists the receiving stream as the Meramec River which is listed on the 303(d) list of impaired waters. The location of the facility relative to the receiving stream in show in Figure 2 of Attachment #2. MSOP MO-0039659 requires that the use or operation of the Eureka WWTF be under the supervision of a Certified "C" Operator. According to the facility's operating permit renewal application, received on November 21, 2017, the facility's current operator is David W. Ricks.

According to an online MO DNR Operator Certification Information System query on July 16, 2019, Mr. Ricks is certified as a Level "A" wastewater operator under certification number 10232, which will expire on April 30, 2021. Based on the online query, Mr. Ricks has obtained all necessary renewal training credits for renewal of operator certification. According to Department records, the Permittee is not currently required to have a Pretreatment Program or does not have an approved pretreatment program. Department staff last conducted inspections of the operation and maintenance of the wastewater treatment plant and the associated sanitary sewer collection system on September 20, 2017. The following list summarizes relevant issues described in the pertinent Department inspection reports dated October 19, 2017 (Eureka Sanitary Sewer Collection System) and October 20, 2019 (Eureka WWTF).

Eureka Sanitary Sewer Collection System: The October 19, 2017 inspection report was issued with a LOW for the violations identified in the report. Namely:

i. The City failed to submit the 2016 inflow and infiltration (I&I) report detailing efforts to locate and eliminate sources of excessive inflow and infiltration into the collection system, in accordance with Special Condition #11 of MSOP MO-0039659.

ii. The City failed to submit a written five day report for three sanitary sewer overflow events which began on April 28, 2017 and December 30, 2015.

iii. The City failed to develop and implement a program for the repairs and maintenance of the collection system as required by Special Condition #11 of MSOP MO-0039659.

Based on my review of the Department files, the City submitted a response to the October 19, 2017 LOW on or around November 15, 2017. Then the Department mailed a letter to the Permittee on January 9, 2018 where, among other matters, the Department informed the City that the required actions in the October 19, 2017 sanitary sewer collection system inspection report would be evaluated in a separate letter. The Department then issued a Return-to-Compliance letter on November 20, 2018 noting that a sufficient response was received to the required actions in the October 19, 2017 sanitary sewer collection system inspection report. The 2016 I&I report was found in the Department files at the time of review and my comments regarding this submission are provided below. According to Department records, the Permittee provided the Department with a copy of the City of Eureka's draft collection system operation and maintenance manual on or around August 22, 2018.

I executed a search in the DNR SSO/Bypass Event System and reviewed Event ID #s 8477 and 8478 with starting dates on December 30, 2015 and Event ID # 10681 with a starting date on April 28, 2017. I then observed that the pertinent Five Day Report Sections have been completed for the aforesaid three events, as requested. However, Event ID #s 8478 and 10681 are still unsatisfactorily marked as ongoing under the pertinent Event Details Sections **(Referral Notice of Violation #1)**.

Eureka WWTF: The October 19, 2017 inspection report was issued with a LOW for the violations identified in the report. Namely:

i. The City was required to submit a completed Form B2 – Application for Operating Permit, regarding renewal of its operating permit.

ii. The facility failed to develop or implement a Stormwater Pollution Prevention Plan (SWPPP) or apply for No Exposure Certification.

The Department issued a return to compliance letter on January 9, 2018 acknowledging receipt on November 20, 2017 of a sufficient response to the required actions in the October 19, 2017 Eureka WWTF inspection report.

Effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the Permittee is to follow are set forth in Tables A-1 to A-3 of the facility's MSOP. Monitoring requirements at Outfall #004 include weekly monitoring of flow, biochemical oxygen demand (BOD), total suspended solids (TSS), Escherichia Coliform (E. Coli) and ammonia as N; monthly monitoring of pH and oil and grease; and quarterly monitoring of total phosphorus, total nitrogen, total dissolved chromium VI, and total recoverable cadmium, chromium III, copper, lead, nickel and zinc. Tables A-1 to A-2 of the permit further require monthly influent sampling for BOD and TSS to evaluate the facility's removal efficiency. Tables B-1 and B-2 also presents instream monitoring requirements for total phosphorus and total nitrogen (quarterly, upstream) and total hardness (monthly, downstream). Compliance with the monitoring and reporting requirements as well as effluent limitations from October 2016 to May 2019 were reviewed prior to the inspection.

Regarding the reporting requirements, the Department files include a copy of an email sent by Heather Johnson of the Department on March 15, 2019, informing Mr. Ricks that Eureka WWTF's 2018 fourth quarter metals and instream monitoring reports were overdue. Ms. Johnson arranged a compliance assistance visit (CAV) at the SLRO at the request of the Permittee on April 10, 2019 to further discuss this issue. The Permittee then provided a responsive email on April 10, 2019 regarding the 2018 fourth quarter samples and has submitted a report of "Analysis Not Conducted" via the electronic Discharge Monitoring Report (eDMR) system, as per Ms. Johnson's advice during the CAV. A summary of the DMR data, submitted by the Permittee in accordance with Special Condition E.1 of MSOP MO-0039659, is included in Attachment #1 of this report. The reported levels of BOD, TSS, E. Coli, oil & grease, and pH in the effluent discharge were below the applicable effluent limitations during the period evaluated. A detailed analysis of the BOD and TSS removal efficiencies is provided in the Engineering Assessment Section of this report.

Mr. Ricks was informed during the compliance inspection of a relevant issue observed during my preliminary review of eDMR data and report information from MoCWIS. Namely, the monthly average ammonia total (as N) reported in May 2019 was significantly high, 352 mg/L. However, the daily maximum ammonia total (as N) reported during the same month was just 9.5 mg/L. He then showed me facility records supporting that the monthly average ammonia total (as N) in May 2019 was 3.52 mg/L. Thus, it looks like the ammonia concentration was erroneously entered into eDMR. We discussed the need to correct this issue. If the Permittee needs further assistance on entering data into the eDMR system, they should contact Ms. Heather Johnson, SLRO (**Referral Notice of Violation #2**).

The Eureka WWTF has a design sludge production of 400 dry tons per year. The sludge is retained in the lagoon. The Permittee is required by Section J, Record Keeping and Reporting Requirements, of Standard Conditions Part III dated March 1, 2015, which is adopted in Part D of MSOP MO-0039659, to submit annual sludge reports by January 28th of each year. No sludge reports where found in the Department files at the time of review. As per Standard Conditions Part III, Section J.2 of MSOP MO-0039659, permittees with wastewater treatment lagoons shall submit annual sludge reports only when sludge or biosolids are removed from the lagoon during the reporting period or when the lagoon is closed. Mr. Ricks asserted during a meeting held at the City Hall on July 10, 2019 that no sludge has been removed from the lagoon during its active/operational life. The City is required under Special Condition of MSOP MO-0039659 to receive approval from the Department for the method of sludge disposal prior to removal of sludge from the lagoon. The City then should prioritize the development and submission to the Department for review of a sludge management plan, to ensure that an approved plan is in place in time (**Recommendation #1**).

MSOP MO-0039659 Special Condition #E.10 requires the submittal of annual infiltration and inflow (I&I) reports by January 28th of each year. The report has to summarize among other information, the permittee's efforts to locate and eliminate sources of excessive I&I into the collection system during the previous calendar year. The following list summarizes the relevant issues discussed with Mr. Ricks regarding the I&I reports for the 2016-2018 reporting periods:

i. 2016 and 2018 I&I reports: These reports were not submitted as an attachment to the eDMR system, as required under Special Condition #E.1 of MSOP MO-0039659 and are not properly signed. The reports briefly outline the City's standard procedures for inspection, repairs, and maintenance of its collection system but do not provide a satisfactory summary with a suitable level of detail for the inspection, maintenance, and repairs to the collection system serving the facility for the respective reporting periods as well as planned activities for the upcoming calendar years (**Referral Notice of Violation #3.a**). A completed Department Annual Inflow and Infiltration report form [780-2690 (02-17)] should be included with upcoming I&I report submissions.

ii. 2017 I&I report: The report was not found in the Department files at the time of review (**Referral Notice of Violation #3.b**).

MSOP MO-0039659 Special Condition #E.10 also requires the development and implementation of a program for maintenance and repair of the collection system associated with the Eureka WWTF. According to Department records, the Permittee provided the Department with a copy of the City of Eureka's draft collection system operation and maintenance manual on or around August 22, 2018. During a BOD Removal Efficiency Compliance Assistance meeting between Eureka and Department staff on July 10, 2019 an option to develop a CMOM program and investigate and address sources of inflow and infiltration into the collection system as a means to address ongoing % BOD removal issues was discussed. Such a program should be consistent with US EPA's guidance for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Program/Model, as described under Special Condition #E.10. Mr. Ricks attended and indicated during the meeting that over 80% of the collection system is maintained and inspected annually by City personnel. At the request of the Permittee, the Department has provided further assistance regarding development of such a program. The I&I report and CMOM Program issues may be further evaluated and discussed, as needed, during the next collection system inspection.

In accordance with Special Condition C.1 of MSOP MO-0039659, the Permittee is to submit interim progress reports every 12 months from October 1, 2016, detailing progress made in attaining compliance with the final effluent limitations for ammonia. The following list summarizes the relevant issues discussed with Mr. Ricks regarding interim progress reports for the 2016-2018 reporting periods.

i. 2016 and 2017 Schedule of Compliance (SOC) reports: The reports were not found in the Department files at the time of review (**Referral Notice of Violation #4**).

ii. 2018 SOC report: The report includes an anticipated general schedule that involves requesting funding and completing a facility plan by October 2019, complete the design by October 2020, obtain a construction permit by March 2021, and complete construction by March 2022.

In accordance with Table A.3 of MSOP MO-0039659, the Eureka WWTF is required to submit acute Whole Effluent Toxicity (WET) test reports annually and one chronic WET test report per permit cycle. The chronic WET test report is due May 28, 2021. The acute WET test reports for the 2016 to 2018 calendar years were reviewed prior to the inspection. Unless mentioned below, these reports consist of a lab report with documentation supporting that the Acute Toxicity Test Methods 2000.0 and 2002.0 were followed for the determination of acute toxic units (TU_a) of *Pimephales promelas* (Vertebrate) and *Ceriodaphnia dubia* (Invertebrate) species, respectively, as required under Special Permit Condition E.22 of MSOP MO-0039659. I noticed during a second review of the 2017 WET test that the dilutions series used for the acute WET test in the 2017 report dated June 22, 2017, are indeed consistent with the dilution series required under Special Condition E.25 of the MSOP MO-0039659 issued on October 1, 2017 as modified on April 1, 2017, with expiration date on September 30, 2017. I informed Mr. Stephan during the compliance inspection that I found the 2017 WET test report satisfactory.

Discussion of Inspection and Observations

A part of the inspection I reviewed Department files for the Eureka WWTF and its associated collection system including previous inspection reports, correspondence, and the permit conditions of MSOP MO-0039659, to familiarize myself with the requirements specific to the facility. The inspection was conducted during normal business hours. Prior notification of the inspection was provided to ensure timely access to the site. Upon arrival at the facility, I identified myself, presented my credentials and outlined the purpose and scope of the inspection to Mr. David Ricks, Eureka WWTF Operations Supervisor. Mr. Ricks granted permission to access the site and accompanied me throughout the tour of the facility. Following a brief introduction, I briefed Mr. Ricks on the relevant issues that I intended to address during the inspection and identified with his assistance the main WWTF structures and unit operations and processes in facility map(s) (Figure #3 of Attachment #2). We then began with a tour of the facility guided by the facility map(s).

Next to the facility's headworks area, we observed the influent lift station (LS) (Photo #s 1-4 of Attachment #3) located adjacent to the fine screen building. The influent LS consists of a wet well equipped with four submersible pumps operated automatically by means of control floats and a pump control panel with an alarm system. At the time of the inspection when two pumps were operating, no relevant foul odors were noticed. If a high water alarm condition occurs, the high water alarm float activates the pump control panel audible/visual alarm system. The control panel is integrated into a SCADA system and features pump run indicator lights, hand-off-auto selector switches, and elapsed time meters. A tipping bucket rain gauge & sensor, also integrated into the SCADA system, is attached to the control panel as shown in Photo #4. The operator can access the SCADA system to remotely monitor the pump's control system and also receives alarm notifications by smartphone.

The LS pumps the influent to the facility's headworks where the wastewater flows first through a manual bar screen and then through a fine screen (Photo # 5) housed in the fine screen building. The fine screen is equipped with a brush and washer to remove the screenings. The screenings are further compacted and dewatered before being discharged into 300-pound trash containers (Photo #6) and landfilled approximately once a week. The screened effluent is then conveyed and discharged into the aerated lagoon (Photo #s 7-9) via two separate pipelines located along the western shore of the lagoon as shown in Figure 3 of Attachment #2. This configuration promotes a more uniform distribution of the influent. Mr. Ricks indicated that the lagoon's depth is approximately 17 feet. The lagoon is partitioned into three main cells by means of baffle curtains. The approximate location of the baffle curtains is also shown in Figure 3. The lagoon is operated in series with the two baffle curtain openings located at opposite ends of the lagoon to prevent short-circuiting. The baffle curtain openings facilitating flow of wastewater between cells are two-feet by two-feet and approximately six to seven feet deep. At the time of the inspection, the lagoon berm appeared to be well maintained with at least two feet of freeboard and rip-rap around the entire perimeter. It was also observed that the facility was properly surrounded by a fence with signage posted around the perimeter.

The facility description under the permit includes the use of Aquamats® in the treatment of wastewater at the Eureka WWTF. The Aquamats® process technology involves the use of high surface area media designed to promote and optimal environment for microbial communities that inhabit the wastewater environment and thus increase their bio-filtration capability and stability, leading to enhanced removal of BOD, TSS, and ammonia. The Aquamats® installed in the lagoon were observed during the inspection (Photo #8) with Mr. Ricks indicating that they have been discontinued by the manufacturer. He further explained that they have found this technology to not be cost-effective and thus the City has plans to eventually remove them. Mr. Ricks indicated that approximately 6.5 MGD of wastewater are recirculated from cell #3 back to cell #s 1 and 2 by means of a recirculation pump (Photo #10) that is operated manually. He further indicated that recirculation is aiding in decreasing the effluent ammonia concentrations. Mr. Ricks indicated that the recirculation pump drafts wastewater from a suction line about three to four feet deep. The return wastewater discharges into cell #1 by means of an open-pipe discharge while the discharge into cell #2 is manually controlled by means of a valve as shown in Photo #9. The recirculation pump was working with return wastewater being discharged into cell #1 at the time of the inspection.

The presence of different varieties of floating plants were observed mainly in lagoon cell #s 1 and 2 as shown in Photo #s 8 and 9. Mr. Ricks identified the prevalent floating plants in the lagoon as duckweed and water primrose. He further indicated that floating plants are physically removed or controlled (in the case of duckweed) with environment-friendly herbicides routinely. More frequent removal and/or control of floating plants is recommended (**Recommendation #2**). Mr. Ricks indicated that no sludge has been removed from the lagoon since it became operational. He explained that the facility applies a bio-augmentation product to the lagoon to promote degradation of accumulated sludge and optimize lagoon treatment to some extent. Mr. Ricks pointed out the fine bubbles widespread on the lagoon water surface, clarifying that this is nitrogen gas being removed as a product of the bio-augmentation process. He further indicated that the facility conducts sludge profile surveys routinely to monitor reduction efforts.

The lagoon is provided with an aeration system that includes three aeration pumps housed in the blowers building (Photo #s 11-14) and four main headers spanning the lagoon from east to west distributing compressed air and feeding fine-bubble air diffusers in the lagoon. Two of the aeration pumps are turbo blowers installed in 2016 and the third unit is an old blower used mainly as a backup. Mr. Ricks explained that routine maintenance of the old blower includes checking and replacing transmission belts, air filters, and oil. He also explained that the facility operator can access real-time operational data of the turbo blowers through the manufacturer's website. Similarly, the turbo blowers' diagnosis built-in features notify the operator when an air filter replacement is needed. Typically, one turbo pump operates at a time with the second one in stand-by and automatically turning on if the first turbo pump turns off. The facility has a backup generator located near the blowers building. At the time of the inspection, the aeration system was in operation. Mr. Ricks pointed out several areas in the lagoon –some of them next to header lines– where excessive bubbling, indicative of air leaks, was occurring. To some degree, the recent floods may have had an impact on the aeration system. Mr. Ricks further indicated that suitable check and repairs of the air distribution lines will be conducted timely (**Recommendation #3**).

The lagoon's effluent structure (Photo #s 15-16) was designed and constructed to draw cell #3 outflow at three different depths: three feet, nine feet, and fourteen feet below the water surface and into a concrete riser where the wastewater may be blended before overflowing into the influent Parshall flume channel. The operator can manually operate the draw-off pipe valves manually and control to some extent the effluent blend conveyed by gravity thru the Parshall flume and then thru the UV disinfection system (Photo #s 17-21). Prior to flowing through the UV disinfection system, the flow passes through a twelve-inch Parshall flume with a mounted flow meter transducer (Photo #17). The UV disinfection system was designed and constructed to house two UV disinfection banks inside a 28-inch channel. Each UV disinfection bank is to be equipped with six modules and six bulbs per module and to be operated continuously during the recreation season. At the time of the inspection, the UV disinfection system was not fully operational. Mr. Ricks explained that a recent flood had impacted the system and emphasized that a UV technician was expected the day of the inspection to make the repairs needed and bring the unit to fully operational within the coming days. He indicated that the bulbs are cleaned once during the season and the UV unit fully cleaned at the end of the season. Mr. Ricks indicated that the effluent lift station (LS) (Photo #22) is provided with two submersible pumps operated automatically by means of float controls as well as with an alarm system. The effluent is then pumped approximately two miles for discharge into the receiving stream.

After our facility walkthrough, we continued the inspection at the WWTF office/lab building where I inquired about monitoring, sampling, and analytical procedures performed onsite; discussed relevant findings observed during the file review conducted prior to the inspection; and reviewed facility records and documentation. Mr. Ricks explained that all the sampling required under the permit is conducted in-house along with the required operational monitoring, including daily measurements and recording of dissolved oxygen (DO) and pH levels within the lagoon. He showed me a bench sheet with the July 2019 monitoring readings. He further explained that the remaining lab/analytical work is conducted outside of the plant by a contract lab. The facility has a copy of Standard Methods for the Examination of Water and Wastewater.

When inquired about the facility sampling procedures, Mr. Ricks was unsure regarding the use of sample preservatives but indicated that the samples are expeditiously shipped to the contract lab for analysis following sample collection. He will be contacting the contract lab regarding this issue. It may be useful that the facility develops a cheat sheet that lists the parameters monitored under the permit along with the pertinent test methods, maximum hold times, and any preservatives to be used (**Recommendation #4**). Mr. Ricks indicated that the calibration of the pH and DO probes/meters is verified/checked, and performed if necessary, prior to use. He further indicated that manufacturer recommendations are followed for equipment maintenance and calibration. Certified pH buffers of 4, 7, and 10 used to calibrate the pH probe/meter were observed in closed containers. Mr. Ricks showed me copies of recent certificates of calibration for the flow meter (April 5, 2019), DO probe/meter (July 25, 2019), and pH probe/meter (July 25, 2019).

When inquired about the use of backflow preventers to protect potable water supplies, Mr. Ricks explained that the facility has three backflow preventers installed. We observed one of the plant's

backflow preventers installed in the WWTF office/lab building (Photo #s 23-24). A test tag dated July 2019 was fastened onto the backflow preventer plumbing fixture. To conclude the inspection, I inquired about the WWTF Operations & Maintenance (O&M) Manual available to the operator. Mr. Ricks showed me two reference documents with key operating procedures and summaries of facility operations: a wastewater lagoon troubleshooting document prepared by H&S Environmental and dated 2003 used by the operator as a guide to solving problems and optimizing the lagoon system; and a O&M manual prepared for the City by air diffusions system (A John Hinde Company).

Sampling and Monitoring

Sampling and monitoring were not conducted at the time of inspection. The last sampling event conducted by the Department's Environmental Services Program (ESP) was on June 14, 2017. A copy of the analytical report prepared by ESP, dated July 3, 2017 is included in Attachment #4. The analytical results reported by ESP for Outfall #4 samples collected and tested for selected parameters were below the permitted effluent limits. I informed Mr. Ricks during the compliance inspection that additional sampling may be conducted at a later date.

Engineering Assessment

In accordance with Table A-1 of MSOP MO-0039659, the Eureka WWTF is required to meet BOD and TSS removal efficiencies of 85 percent or more as a monthly average. An analysis of percent removal for both BOD and TSS between October 2016 and May 2019 is included in Attachment #5 of this inspection report. Attachment #5 shows that the facility has failed to satisfy the required 85 percent BOD and 85 percent TSS removal efficiencies several times during the October 2016 through May 2019 period evaluated. Further, the Permittee has consistently failed to meet the required BOD removal efficiencies since approximately June 2018 **(Referral Notice of Violation #5.a)**. The lowest reported percent removals were 65 percent for BOD in August of 2018 and 7.9 percent for TSS in January of 2019.

The lowest percent removal of TSS in January 2019 warranted further investigation during the compliance inspection. Mr. Ricks was informed during the compliance inspection of this relevant issue. He showed me facility records supporting that the influent and effluent monthly average TSS in January was 72 and 17.4 respectively, which translates to a TSS percent removal of 76. Therefore, it looks like the TSS removal efficiency was erroneously entered into eDMR. We discussed the need to correct this issue **(Referral Notice of Violation #5.b)**. If the Permittee needs further assistance entering data into the eDMR system they should contact Ms. Heather Johnson, SLRO. The percent removals were plotted against reported daily maximum flows for comparison and are included in Attachment #5 of this report for reference.

A compliance assistance visit (CAV) was held at the DNR SLRO on April 10, 2019 to further discuss the facility's failure to satisfy the required BOD and TSS removal efficiencies described above. During the CAV, Mr. Ricks indicated to Ms. Heather Johnson with DNR, that they do not anticipate seeing and end to these exceedances until the City completes major upgrades at the plant

to comply with their schedule of compliance (compliance with the final effluent limits for ammonia under the permit must be achieved by October 2022). The failure to meet removal efficiencies as required under the permit was further acknowledged by Mr. Ricks on February 1, 2019 via email to Ms. Johnson. Mr. Ricks further outlined in the 2/1/2019 email the steps that have been taken so far towards resolving the issue, including: examining and making repairs to the collection system to prevent I&I, looking at dilutions of wastewater from businesses and recreation parks, and further researching the treatment process of the lagoon involving the effect of algae, duckweed, and other aquatic plants on the treatment of the lagoon system. As a side note, Mr. Ricks also indicated that, in compliance with future ammonia removal, the City is also researching treatment processes to help remove and filter BOD and TSS, in addition to ammonia.

The Department issued a Letter of Warning (LOW) on June 25, 2019 for significant violations of MSOP MO-0039659 involving failure to meet the BOD 85% removal efficiency for the monitoring periods between 7/31/2018 and 12/31/2018. A meeting was held at the City Hall on July 10, 2019 between DNR and City staff to provide further BOD Removal Efficiency Compliance Assistance. Three (3) options were discussed towards addressing ongoing % removal exceedances:

i. Develop a CMOM program and investigate and address sources of inflow and infiltration into the collection system.

ii. Demonstrate justification for a permit modification, namely that excessive I&I is not the cause of dilute influent.

iii. Enter into an administrative order of consent (AOC) with Enforcement to implement a long-term plan to address % removal issues and upcoming final ammonia limits.

The Department recommended entering into an AOC.

The Department received on around July 31, 2019 a response to the 6/25/2019 LOW. This response summarizes the steps that the facility will take towards resolving the significant violations outlined in the 6/25/2019 LOW, as follows. The City is confident that simply relocating the sampling station will lead to compliance:

i. The City has determined that the sampling station is incorrectly located after the wastetech filter screen. The City will move the sampling station before the screen and manhole structure to collect samples prior to any treatment processes. Also, the City will conduct wastewater quality control testing by an independent lab to verify current lab results.

ii. The City will obtain wastewater quality and flows from that which Six Flags discharges to the City's collection system to determine the extent to which their waterpark backwash is diluting the City's influent. Additionally, the City will collect samples throughout the collection system to verify concentrations of wastewater being dispensed to the WWTP.

Mr. Jeff Crannick with DNR SLRO conducted a site visit on August 2, 2019 and followed up with an email on the same day acknowledging that collecting influent samples at the manhole located right before the influent pump station will satisfy the permit requirement of collecting the sample before any treatment process. Mr. Crannick also provided further details regarding the City's plans to better characterize the Six Flag discharge. Namely, the City plans to take weekly samples for a period of a month or more to establish a trend of the BOD and TSS content to help determine if this is a source of low solids content in the WWTP influent. If it is determined that this is not the source, then the City will investigate other potential I&I issues that could be contributing to this. The City is showing commitment to continue their work efforts towards resolving this issue satisfactorily. However, this significant non-compliance is still an ongoing and substantial concern that needs to be resolved in a timely manner.

Compliance Determination, Violations, and Required Actions

A CAV was held at the SLRO on April 10, 2019 to discuss the facility's failure to consistently satisfy the required BOD and TSS removal efficiencies since approximately June 2018. The City then indicated that they do not anticipate seeing an end to these exceedances until the major plant upgrades to comply with their schedule of compliance under Special Condition #C of MSOP MO-0039659 are completed. The Department issued a LOW on June 25, 2019 for significant violations of MSOP MO-0039659 involving failure to meet the BOD 85 percent removal efficiency for the monitoring periods between July 31, 2018 and December 31, 2018. A meeting was held at the City Hall on July 10, 2019 between Department and City staff to provide further BOD Removal Efficiency Compliance Assistance.

The Department received on around July 31, 2019 a response to the June 25, 2019 LOW. The July 31, 2019 response was received after the subject compliance inspection conducted on July 29, 2019. The City is showing commitment to continue their work efforts towards resolving this issue satisfactorily. However, the aforesaid significant non-compliance is still an ongoing and substantial concern that needs to be resolved in a timely manner [10 CSR 20-3.010(2)(B)8.I]. The facility has been found to remain in significant non-compliance with the Missouri Clean Water Law, the Clean Water Commission Regulations, and Missouri State Operating Permit MO-0039659, based upon the violations and observations documented in this inspection report, and a **Referral Notice of Violation (RNOV)** is being issued for the violations identified below.

Referral Notice of Violation (RNOV) SL190028

1. Sanitary Sewer Overflow (SSO) Events: Event ID #s 8478 and 10681 are unsatisfactorily marked as ongoing under the pertinent Event Details Sections in the DNR SSO/Bypass Event System [Special Condition #E.11 of MSOP MO-0039659, Standard Conditions Part I, Section B, subsection 2 of MSOP MO-0039659].

2. eDMR: The ammonia total (as N) data entered into the eDMR system for May 2019 was 352 mg/L (monthly average) and 9.5 mg/L (daily maximum). Facility records reviewed during the compliance inspection on August 29, 2019 support that the monthly average

ammonia total (as N) was 3.52 mg/L. The Permittee shall correct this issue and update the data in the eDMR system accordingly [Special Condition #E.1 of MSOP MO-0039659]. For assistance on entering data into the eDMR system the Permittee should contact Ms. Heather Johnson with DNR SLRO.

3. Inflow and Infiltration (I&I) Reports:

    a. 2016 and 2018 I&I reports: These reports were not submitted as an attachment to the eDMR system and are not properly signed. The reports briefly outline the City's standard procedures for inspection, repairs, and maintenance of its collection system but do not provide a satisfactory summary with a suitable level of detail for the inspection, maintenance, and repairs to the collection system serving the facility for the respective reporting periods as well as planned activities for the upcoming calendar year [Special Condition #s E.1 and E.10 of MSOP MO-0039659]. A completed Department Annual Inflow and Infiltration Report form [780-2690 (02-17)] should be included with upcoming I&I report submissions. A copy of this form is included as Attachment #6.

    b. 2017 I&I report: The report was not found in the Department files at the time of review [Special Condition #E.10 of MSOP MO-0039659].

4. Schedule of Compliance (SOC) reports: The 2016 and 2017 SOC reports were not found in the Department files at the time of review [Special Condition C.1 of MSOP MO-0039659].

5. BOD and TSS Removal Efficiencies: [40 CFR Part 133.102(a)(3) & (b)(3), Table A-1 (Interim Effluent Limitations and Monitoring Requirements) of MSOP MO-0039659]:

    a. The facility has failed to satisfy the required percent BOD and percent TSS removal efficiencies of 85 several times during the October 2016 through May 2019 period evaluated. Further, the Permittee has consistently failed to meet the required BOD removal efficiencies since approximately June 2018. The City is showing commitment to continue its work efforts towards satisfactorily resolving this issue. However, non-compliance is still an ongoing and substantial concern that needs to be resolved in a timely manner.

    b. The January 2019 TSS removal efficiency entered in the eDMR system was just 7.9 percent. This data was presumably entered in error in the eDMR system and needs to be corrected accordingly.

REQUIRED ACTION: The facility owner/Permittee shall make appropriate modifications to the facility to meet the permitted removal efficiencies and also to resolve the Referral Notice of Violation #s 1 through 5 listed above. The facility owner/Permittee shall submit a written response