

REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

AT
Gerald Wastewater Treatment Facility (WWTF)
Gerald, MO 63037

NPDES NO: MO-0045420

December 11-14, 2023

BY
U. S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement and Compliance Assurance Division (ECAD)

INTRODUCTION

I performed a Compliance Sampling Inspection (CSI) at the Gerald WWTF in Gerald, Missouri from December 11, 2023, through December 14, 2023. The inspection was authorized by Section 308(a) of the Federal Water Pollution Control Act, as amended. This narrative report presents the findings of the inspection.

PARTICIPANTS

Gerald WWTF

Nick Grube, City Administrator/Operator (573) 764-3340

Email: ngrube@geraldmo.com

Dave Defrene, Public Works Director/Operator

Email: cityofgeraldpw@gmail.com

Gerald Industries Inc. (Present only during the Gerald Industries Inc. portion of the inspection)

Jeff Siebert, Plant Manager (573) 764-2262 ext. 3301

Email: jeffsi@demaeng.com

Newly Weds Foods (Present only during the Newly Weds Foods portion of the inspection)

Leo Vogler, Plant Manager (573) 764-3396

Email: lvogler@newlywedsfoods.com

Missouri Department of Natural Resources (Present only during the Industrial User Inspections)

Brad Allen, Pretreatment Coordinator (573) 522-3454

Email: brad.allen@dnr.mo.gov

Oscar Vazquez, Environmental Engineer (314) 416-2960

Email: oscar.vazquez@dnr.mo.gov

U. S. Environmental Protection Agency (EPA)
Joe Heafner, Life Scientist (913) 551-7091
Email: heafner.joseph@epa.gov

PROCEDURES

On December 11, 2023, I arrived at the Gerald City Hall at 11:00 a.m., introduced myself to Mr. Grube and Mr. Defrene, presented my credentials, and explained the purpose and procedures of the inspection. These procedures included completing the Water Compliance Inspection Report (attachment 1), a facility walk-through with photos (attachment 2), a check of the self-monitoring records, the collection of influent and effluent, Industrial User inspections at Gerald Industries Inc. and Newly Wed Foods, and an exit interview.

From December 11, 2023, through December 14, 2023, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the influent from the manhole leading to the WWTF lift station. I suspended a weighted length of new Tygon tubing into the influent channel. I connected the other end of the tubing to the sampler pump and programmed it to collect evenly spaced aliquots every 15 minutes into a clean Nalgene bottle, which was packed in ice. I returned each day to service the sampler. I removed the bottle, agitated its contents, and poured them into clean, pre-labeled containers for the analysis of Biochemical Oxygen Demand (BOD), Non-Filterable Solids (NFS), Ammonia, Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite, Total Nitrogen (by calculation), Total Phosphorus (TP) and Metals. I measured the pH and temperature in a separate grab sample using a field meter.

From December 11, 2023, through December 14, 2023, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the effluent before the ultraviolet (UV) disinfection system. I suspended a weighted length of new Tygon tubing into the channel and connected the other end to the sampler pump and programmed it to collect evenly spaced aliquots every 15 minutes into a clean Nalgene bottle, which was packed in ice. I returned each day to service the sampler. I removed the collection bottle, agitated its contents, and poured them into clean, pre-labeled containers for the analysis of BOD, NFS, Ammonia, TKN, Nitrate+Nitrite, Total Nitrogen (by calculation), TP and Metals. I measured the pH and temperature in a separate grab sample using a field meter.

On December 13, 2023 and December 14, 2023, I took grab samples from Outfalls 001 and 002 at Newly Weds Foods. The samples were taken from manholes that lead to the sanitary sewer system of Gerald, Missouri. Grab samples were collected in clean, pre-labeled containers for the analysis of BOD, NFS, Ammonia, TKN, and Oil and Grease. I measured the pH and temperature in a separate grab sample using a field meter.

On December 12, 2023, and December 13, 2023, I placed the samples I collected on ice in an ice chest, sealed the container and shipped it overnight to the EPA Region 7 Science and

Technology Center (STC) for analysis. On December 14, 2023, I placed the samples I collected on ice in an ice chest, sealed the container and hand delivered the samples to the EPA Region 7 STC for analysis. I followed Region 7 LSASD standard operating procedures in the collection, packaging, transportation, and handling of the samples. Field Sheets and Chain of Custody forms were electronically submitted each day following Region 7 procedures. All samples shipped arrived on time.

FACILITY DESCRIPTION

The Gerald WWTF is owned and operated by the City of Gerald, Missouri. The legal description is the NW ¼, NW ¼, Section 1, Township 42 North, Range 4 West within Franklin County, Missouri. The physical address of the WWTF is 0.3 miles east of the intersection of Wheeler Road and Route Y, Gerald MO 63037. The mailing address is 106 E. Fitzgerald, P.O. Box 59, Gerald, MO 63037. The WWTF treats domestic wastewater from the city of Gerald. Since the city does not have an approved pre-treatment program, the Missouri Department of Natural Resources (MDNR) regulates the discharge of two industrial sources (Gerald Industries and Newly Weds Foods) into the sanitary sewer on behalf of the city. Final effluent from the WWTF is discharged to Cedar Fork. Cedar Fork winds north for approximately 9 miles before entering Bouef Creek.

The following are components of the WWTF. See attachment 3 for a layout map of the facility:

- Influent manhole
- Equalization Basin/Sludge Holding Basin
- Influent lift station
- Grit removal
- Mechanical Screen (operated manually)
- Biolac Aeration Basin
- Clarifier
- UV Disinfection

Stormwater Retention Basin

Biosolids are handled by the following sequence:

- Sludge Holding Basin

According to Mr. Grube, biosolids have not been disposed of since the facility was constructed in 2011/2012.

The facility has a design flow of 0.150 MGD with an actual flow average during the inspection of 0.126 MGD.

The WWTF's National Pollutant Discharge Elimination System (NPDES) Permit (MO-0045420) was issued on September 1, 2016 (attachment 4). The permit expired on December 31, 2020. Mr. Grube indicated that MDNR was working to renew the permit at the time of the inspection.

FINDINGS AND OBSERVATIONS

The following findings were noted during the plant and record review. A complete summary is given in the NPDES Compliance Inspection Report Checklist (attachment 1). These findings were discussed with Mr. Grube during the exit meeting.

Self-Monitoring Data Review:

I obtained a spreadsheet of the NetDMR data for the Gerald WWTF from January 2019, through September 2023, and reviewed the data during the inspection. During the review, I noted that since 2019, the facility has violated the BOD effluent limits on twenty-five occasions. I also noted that in 2022, the facility failed to meet the effluent limits for BOD all twelve months. I also noted that in 2023, the facility violated the BOD effluent limits twice. The facility also has violated the effluent limits for ammonia fourteen times since 2019, twelve times for TSS, five times for E.coli, once for Iron and once for Cadmium.

Mr. Grube stated during the inspection that E.coli samples were not taken as required by the permit in September and October of 2023. Mr. Grube stated that the samples were not taken due to a malfunction of the UV system. I informed him during the inspection that samples needed to be taken regardless of whether the treatment system was in operation.

As the result of my review, I issued a Notice of Preliminary Findings (NOPF) at the end of the inspection for the effluent limits that have occurred since 2019 and for not conducting E. coli samples in September and October of 2023 (attachment 5).

Sample Results

The analytical results from the sampling conducted during the inspection were received on January 17, 2024, from the Region 7 STC laboratory. This data was not discussed during the exit interview. The analytical results for BOD, NFS, TKN, Ammonia, Nitrates+Nitrites, TN, TP, Oil and Grease, metals, pH, temperature and flow of the samples I collected are presented in Tables 2 and 3 below. See attachment 6 for the analytical data packet for Activity JAH2405.

Table 1A: Analytical Results for Influent

Parameter	(December 12) 2300511-01	(December 13) 2300512-01	(December 14) 2300513-01
BOD₅ (mg/L)¹	250	274	361
NFS (mg/L)	260	294	260
TKN (mg/L)	47.4	48.2	45.4
Nitrate+Nitrate (mg/L)	0.156	0.128	0.153
Total Nitrogen	47.6	48.3	45.6
Ammonia (mg/L)	33.0	39.1	47.2
Total Phosphorus (mg/L)	6.25	6.90	10.6
Oil and Grease (mg/L)	36	35.8	54.3
Aluminum (ug/L)	276	250	592
Cadmium (ug/L)	ND	ND	ND
Copper (ug/L)	29.9	35.2	49.5
Iron (ug/L)	675	711	1300
Lead (ug/L)	ND	ND	ND
Nickel (ug/L)	ND	ND	ND
Temperature (°C)²	13.6	7.69	7.62
pH³	7.88	14.6	14.9
Flow	NA	NA	NA

¹mg/L = milligrams per liter

²°C = degrees Celsius, Temperature was measured in the field.

³ pH is not to be averaged; pH was measured in the field.

Table 1B: Analytical Results for Effluent Samples Collected During Inspection

Parameter	(December 12) Sample # 2300511-02	(December 13) Sample 2300512-02	(December 14) Sample 2300513-02	Concentration Permit Limits ³
BOD5 (mg/L)¹	71.0	49.0	78.7	16.5/24
NFS (mg/L)	38.1	24.0	26.7	22/33
Ammonia (mg/L)	31.8	32.2	32.0	For December 2.3/11.4
TKN (mg/L)	36.6	44.2	29.5	NA
Nitrate+Nitrite (mg/L)	0.129	0.109	0.0945	NA
Total Nitrogen (mg/L)	36.7	44.3	29.6	NA
Total Phosphorus (mg/L)	6.30	6.5	5.70	NA
Oil and Grease (mg/L)	6.81	7.13	6.47	10/15
Aluminum (ug/L)	73.5	94.2	129	260/750
Cadmium (ug/L)	ND	ND	ND	0.5/0.5
Copper (ug/L)	12.9	9.80	11.7	17.6/31.7
Iron (ug/L)	400	409	524	710/1,840
Lead (ug/L)	ND	ND	ND	8.8/16.2
Nickel (ug/L)	ND	ND	ND	76.9/212
Temperature (°C)²	10.2	11.7	10.6	NA
pH²	7.60	7.86	7.85	6.0-9.0
Flow in MGD	0.141	0.127	0.111	NA

¹mg/L = milligrams per liter.

²°C = degrees Celsius, pH is not to be averaged, pH was measured in the field.

³Permit limits for BOD and NFS are Monthly followed by 7-day Averages. Limits for Ammonia are Daily Maximum followed by 30-day average. Metal limits are Monthly Average followed by Daily Maximum followed by Monthly Average.

⁴ND= No Detection

Results from sampling conducted during the inspection indicate that the facility violated the seven-day average limits for BOD and the daily limits for Ammonia. The sample results also indicates that if these samples were used to calculate monthly averages, the facility would have violated the effluent limits for BOD, TSS, and Ammonia.

Biosolids (sludge)

As mentioned above, the facility utilizes the equalization basin as its sludge storage facility. Mr. Grube stated that the system does not generate a lot of biosolids and that they have not handled biosolids since the facility was upgraded in 2011. According the NPDES permit, the facility should be generating approximately 8.3 dry tons of biosolids per year. During the inspection, I

observed the equalization basin and did not note a build-up of biosolids within the basin.

Laboratory

The facility utilizes Water Smart Testing, LLC of Rolla, Missouri, for all of its regulatory analysis. During the inspection, I requested electronic copies of the laboratory data sheets that the facility receives including any chain-of-custody forms. After the inspection, I was provided electronic copies of laboratory data sheets for 2022 and 2023. I reviewed the data sheets, and they indicated that methods used follow the methods required by 40 CFR Part 136. My review also indicated that all holding times were being met. After my review, I placed the electronic copies within the ECAD electronic file system.

Mr. Grube stated that the facility measures the pH in the field with a pH meter. I observed the pH meter calibration records and noted that the facility was only utilizing one point of calibration. I also noted that the pH calibration buffers were expired at the time of the inspection. I informed Mr. Grube that at least two points of calibration were needed for the pH meter. At the conclusion of the inspection, I issued a NOPF for not calibrating the pH meter properly as required by Standard Condition Part 1 (5) of the NPDES permit.

Collection System

During the inspection, I discussed the city's collection system with Mr. Grube. Mr. Grube estimated that the city has approximately 14 miles of sanitary sewer and includes six lift stations. Mr. Grube stated that the city has known "problem" areas that they clean on a regular basis, however there is not a routine cleaning schedule for the sanitary sewer system.

Mr. Grube and I observed three lift stations (photos 16-18) during the inspection. I observed the wet wells at the "Main", "Park" and "Walnut" lift stations. All three lift stations appeared to be in good working order. None of the lift stations were wired for backup power, they each had audible or visual alarms. Mr. Grube stated that each lift station is visited each day.

Special Condition #11 of the NPDES permit requires that the facility develop a maintenance program for the collection system. According to Mr. Grube, the facility has not developed the maintenance program as required by the permit. At the conclusion of the inspection, I issued a NOPF for not completing the development of the collection system maintenance program.

Industrial Users

As mentioned above, the facility has two industries that are regulated by the MDNR on behalf of the city. Each industrial user has effluent limits for their respective process wastewater discharges that have been incorporated into the WWTF's NPDES permit. Below is a description of each industrial user and results of sampling that were conducted during the inspection.

Gerald Industries

Gerald Industries is located at 625 W Industrial Drive and has been in operation since 1991. It currently employs 170 people who build, test, then package solenoid-controlled refrigerant valves. The facility previously also manufactured desiccant filter housings, however in early 2023, this manufacturing line was discontinued. The desiccant filter housing line included a phosphatizing operation that made the facility subject to the metal finishing pretreatment requirements of Chapter 40 part 433.17 of the Federal Code of Regulations (40 CFR 433.17). All equipment associated with the desiccant filter housing line has been removed from the facility. Since the line has been removed from the facility, it does not appear that the facility will be subject to the metal finishing requirements and therefore will no longer be considered a categorical industrial user.

Currently, the operation consists of several workstations that assemble and test the solenoid-control valves before packaging. The test includes submerging several valves in a water bath then testing the functionality of the valve. Water is manually vacuumed from the tank after several uses and is stored in a 55-gallon drum. According to Mr. Sibert, the water is suctioned from the top of the drum and discharged into the sanitary sewer system.

MDNR last inspected the facility on May 5, 2023, and found that the facility was in compliance (attachment 7).

Newly Weds Foods

Newly Weds Foods' Seasonings Division (SIC# 2099), located in the west industrial area (412 W Flottmann Road), processes and packages dry spices and seasonings (e.g., paprika, chili peppers, cumin) for the wholesale market. At the time of the inspection, I met with Mr. Leo Vogler, the plant manager. Mr. Vogler stated that there are about 10 production lines and approximately 67 employees. There are 3 production shifts on weekdays. The facility has two outfalls that discharge to the sanitary sewer system and are designated as Outfalls 001 and 002. Mr. Vogler provided a flow diagram showing the water usage and discharge volumes of the different production lines (attachment 8). Outfall 001 consists of several production areas and domestic wastewater before being discharged directly to the sanitary sewer system. Outfall 002 consists of domestic wastewater and production areas that flow into a settling tank before discharging to the sanitary sewer system. Mr. Vogler stated that the facility is in the process of designing a new pretreatment system that will allow all process wastewater to be treated and discharged to the sanitary sewer through one outfall.

As stated earlier, MDNR regulates the process wastewater discharged to the sanitary sewer on behalf of the city through a pretreatment fact sheet (attachment 9). The fact sheet explains the responsibilities that the facility has for handling its process wastewater including sampling frequency and any effluent limits. Newly Weds Foods' fact sheet does not have any effluent limits for the process wastewater. MDNR performed an inspection at Newly Weds Foods on April 24, 2023 (attachment 10).

Below is a table that represents the analysis of samples taken at Newly Weds Foods that were obtained during the inspection. Samples collected during the inspection were light to dark red in color due to product in the process wastewater (photos 21 & 22). See attachment 11 for the analytical data packet for Activity JAH2404 which was received on January 16, 2024.

Table 3: Analytical Results for Samples Collected at Newly Weds Foods During Inspection

Parameter	(December 13) Sample # 2300514-01 Outfall 001	(December 13) Sample # 2300514-02 Outfall 002	(December 14) Sample # 2300515-01 Outfall 001	(December 14) Sample # 2300515-03 Outfall 002
BOD5 (mg/L)	294	145	304	148
NFS (mg/L)	688	30.1	163	71.0
Oil and Grease (mg/L)	ND	6.36	75.2	16.4
Ammonia (mg/L)	0.535	5.15	1.52	1.11
TKN (mg/L)	9.87	19.9	25.6	8.82
Nitrate+Nitrites (mg/L)	0.219	0.126	0.778	0.0901
Total Phosphorus (mg/L)	1.70	1.68	4.62	2.17
pH	9.26	7.35	8.0	7.14
Temperature	27.8	24.1	23.8	25.0
Flow in MGD	NA	NA	NA	NA

Neither MDNR nor the City has established local limits for Newly Weds Foods' discharge of process wastewater to the sanitary sewer system.

Operational Issues and Observations

1. I observed all areas of the WWTF during the inspection (photos 1-12). Mr. Grube stated that a sensor on the automatic screening system was not operational, therefore operators manually operate the screen twice per day. Mr. Grube also stated that there are electrical issues with the UV system and, at the time of the inspection, was not functional. It should be noted that the UV system is only required to operate from March 1 through October 31 of each year and was not operating during the inspection. At the conclusion of the inspection, I issued a NOPV for not operating and maintaining the UV system as required by Standard Condition Part 1 (5) of the NPDES permit.
2. During the inspection, Mr. Grube commented that the sludge holding basin/equalization basin has been flooded twice since the facility was constructed with the most recent in July of 2023. Special Condition #21 of the NPDES permit

requires that the facility take all necessary means to mitigate intrusion of stormwater into the WWTF. At the end of the inspection, I issued a NOPF for the facility not complying with Special Condition #21. I also noted that the county road department recently replaced the downstream culverts along Wheeler Road. The new culverts were much larger and should alleviate flooding in the future.

3. Mr. Grube stated during the inspection that the facility has not operated properly since the facility was constructed in 2011. He stated that there are times that the facility will meet effluent limits but not on a consistent basis. I asked if the city has an Operations and Maintenance (O&M) manual for the facility. He stated that he was not aware. I stated that Special Condition #16 of the NPDES permit requires that there be an O&M manual for the facility. At the conclusion of the inspection, I issued a NOPF for not having a O&M manual. In the response to the NOPF, Mr. Grube stated that they would contact the original design engineers and request an O&M manual for the facility.

Summary

A NOPF was issued to the city for the following:

- Effluent violations for BOD, TSS, and Ammonia.
- Not sampling E.coli in September and October 2023 as required by the NPDES permit.
- Facility not operating the UV system as required by the NPDES permit Standard Condition Part I.
- The facility does not have a O&M manual as required by Special Condition #16 of the NPDES permit.
- The facility was not protected from flooding as required by Special Condition #21 of the NPDES permit.
- The facility does not have a management plan developed for the collection system as required by Special Condition #11 of the NPDES permit.

The facility responded to the NOPF via email on December 15, 2023, with plans to address the preliminary findings from the inspection (attachment 5).

**JOSEPH
HEAFNER**
Joe Heafner
Life Scientist

Digitally signed by
JOSEPH HEAFNER
Date: 2024.01.30
06:39:12 -06'00'

**JODI
BRUNO**
Jodi Bruno
Branch Manager

Digitally signed by JODI
BRUNO
Date: 2024.01.30
08:17:03 -06'00'

Attachments:

1. Water Compliance Inspection Report, Form 3560-3 (4 pages)
2. Digital Photographs with Photo Log (25 pages)
3. Facility Satellite Photos/Maps (1 page)
4. NPDES permit issued on September 1, 2016 (9 pages)
5. NOPF and facility response (2 pages)
6. Laboratory Analytical Report for Activity JAH2405 (Gerald WWTF) (27 pages)
7. May 5, 2023 MDNR Inspection Report for Gerald Industries (26 pages)
8. Newly Weds Foods Flow Diagram (1 page)
9. Newly Weds Foods Fact Sheet (7 pages)
10. April 24, 2023 MDNR inspection for Newly Weds Foods (20 pages)
11. Laboratory Analytical Report for Activity JAH2404 (Newly Weds Foods) (17 pages)