

REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

AT

**Britt Wastewater Treatment Facility (WWTF)
Britt, IA 50423**

NPDES NO: IA-0023582

July 15-18, 2024

BY

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

INTRODUCTION

I performed a Compliance Sampling Inspection (CSI) at the Britt WWTF in Britt, Iowa, from July 15, 2024, through July 18, 2024. 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

Britt WWTF

Vance Hagen, Public Works Director/Operator (641)843-4433 (Only on July 18)
Email: brittpw.hagen@gmail.com
Jade Johnson, Public Works Employee
JT Merriam, Public Works Employee

U. S. Environmental Protection Agency (EPA)

Joe Heafner, Life Scientist (913) 551-7091
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PROCEDURES

On July 15, 2024, I arrived at the Britt WWTF at 1:00 p.m. and introduced myself to Mr. Merriam, presented my credentials, and explained the purpose and procedures of the inspection. These procedures included completing the Water Compliance Inspection Report (attachment 1), an EPA Region 7 Biosolids Checklist (attachment 2), a facility walk-through with photos (attachment 3), a check of the self-monitoring records, the collection of influent, effluent and biosolids samples, and an exit interview. Mr. Merriam stated that the operator, Mr. Hagen was on

vacation, however, he would return on Thursday, July 18, 2024. Mr. Merriam stated that between Mr. Johnson and himself, they would be available for any questions until Mr. Hagen returned. I stated that I would continue to conduct the inspection and would discuss my findings with Mr. Hagen upon his return.

From July 15, 2024, through July 18, 2024, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the influent after screening. I suspended a weighted length of new Tygon tubing into the influent channel after the manual bar screen, and I connected the other end to the sampler pump and programmed it to collect evenly spaced aliquots every 30 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 Carbonaceous Biochemical Oxygen Demand (CBOD), Non-Filterable Solids (NFS), Ammonia, Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite, Total Nitrogen (by calculation), Total Phosphorus (TP), Chlorides, and Metals. I measured the pH and temperature in a separate grab sample using a field meter.

From July 15, 2024, through July 18, 2024, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the effluent before effluent discharges through Outfall 001. 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 30 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, Chlorides, and Metals. I measured the pH and temperature in a separate grab sample using a field meter.

On July 18, 2024, I took a grab sample of biosolids from the digester using one 32-ounce glass jar. I hand delivered the sample of biosolids with the other collected samples on July 18, 2024. The biosolids were analyzed for Metals, including Mercury, percent solids, Total Phosphorus and TKN.

On July 16, 2024, and July 17, 2024, 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 July 18, 2024, 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 arrived at the STC within proper holding times.

FACILITY DESCRIPTION

The Britt WWTF is owned and operated by the city of Britt, Iowa. The legal description is the SW ¼, Section 33, Township 96 North, Range 25 West within Hancock County, Iowa. The

physical address of the WWTF is 1001 9th Avenue SW, Britt, IA. The mailing address is 170 Main Street S., Britt, IA 50423. The WWTF treats domestic wastewater from the city of Britt. According to the NPDES permit there are no significant industrial users that discharge to the WWTF; however, during the inspection, I identified National Purity as an industrial wastewater source that discharges process wastewater (rinse water from batch tanks associated with industrial cleaner blending). On July 17, 2024, I conducted an Industrial User (IU) inspection at National Purity. The results of that inspection are contained in the Industrial User section of this report. Final effluent from the WWTF is discharged to Drainage Ditch #105 through Outfall 001. Effluent flows approximately 2.70 miles south then enters the Middle Branch of the Boone River along 200th Street.

The following are components of the WWTF. See attachment 4 for a layout map of the facility:

Influent Parshall Flume
Headworks which includes manual bar screen
Primary Clarifier
Trickling Filter
Secondary Clarifier

Biosolids are handled by the following sequence:

Aerobic Sludge Digestion (1)
Biosolids Storage Building

The facility also has a permitted bypass designated as Outfall 002 in the NPDES permit. The bypass is located before the influent Parshall Flume. The bypass consists of a passive wall separating the main flow from the bypass. During precipitation events, excessive wastewater flows over the wall and is conveyed through the bypass and discharges directly into the receiving stream. The facility reports all bypasses on the monthly operation reports. The facility also reports the bypasses to the Iowa Department of Natural Resources as required.

The facility has an average dry weather flow of 0.530 MGD with an actual flow average during the inspection of 0.183 MGD.

The WWTF's National Pollutant Discharge Elimination System (NPDES) Permit (MO-0024449) was issued on September 1, 2021 (attachment 5). The permit expires August 31, 2026. The IDNR amended the permit on March 1, 2022.

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. Hagen during the exit meeting.

Self-Monitoring Data Review:

I obtained a spreadsheet of the NetDMR data for the Britt WWTF from January 2021 through June 2024 and reviewed the data. During the inspection, I also obtained an electronic copy of the facility's Discharge Monitoring Reports for the years 2020 – 2024.

Table 1A below represent the effluent violations noted during the review.

Table 1A: Effluent violations at Outfall 001 reported from January 2021 – June 2024

	BOD	Limits	Copper	Limits	Ammonia	Limits	TSS	Limits	Chlorides	Limits
Feb-21	33.875/65	25/40								
Jan-22			0.025	0.0174						
Feb-22			0.018	0.0174	4.05	2.1				
Jul-22			0.018	0.0174						
Dec-22			0.021	0.0174			47	45	405	399
Oct-23	60.5	45	0.021	0.0174						
Nov-23			0.025	0.0174						
Dec-23			0.031	0.0174/0.027						
Jan-24			0.019	0.0174			52.6/163	30/45		
Feb-24			0.03	0.0174			48	45		

Limits are in concentration (mg/L). Limits are 30 averages followed by 7 day averages.

At the conclusion of the inspection, during the exit conference, I issued a Notice of Preliminary Findings (NOPF) (attachment 6) to the facility for the reported effluent violations.

Sample Results

The analytical results from the sampling conducted during the inspection were received on August 13, 2024, from the Region 7 STC laboratory (attachment 7). This data was not discussed during the exit interview. The analytical results for BOD, NFS, TKN, Ammonia, Nitrates+Nitrites, Total Nitrogen, Total Phosphorus, metals, pH, and temperature of the samples I collected are presented in Tables 2 and 3 below. See attachment 7 for the analytical data packet.

Table 2A: Analytical Results for Influent

Parameter	(July 16) 2400298-01	(July 17) 2400299-01	(July 18) 2400300-01
CBOD₅ (mg/L)¹	114	76.7	77.2
NFS (mg/L)	112	77.1	87.6
TKN (mg/L)	18.9	19.7	21.8
Nitrate+Nitrate (mg/L)	0.875	1.14	0.689
Total Nitrogen	19.8	20.8	22.5
Ammonia (mg/L)	11.2	11.9	13.8
Total Phosphorus (mg/L)	2.60	2.55	3.40
Chlorides (mg/L)	176	177	204
Copper (mg/L)	0.0325	0.0249	0.024
Temperature (°C)²	17.8	17.7	17.0
pH³	7.40	7.35	7.46
Flow	0.18117	0.1837	0.18640

¹mg/L = milligrams per liter

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

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

Table 2B: Analytical Results for Effluent Samples Collected During Inspection

Parameter	(July 16) Sample # 2400298-02	(July 17) Sample 2400299-02	(July 18) Sample 2400300-02	Concentration Permit Limits³
CBOD5 (mg/L)¹	3.82	5.59	7.07	40/25
NFS (mg/L)	ND ⁴	6.08	4.48	40/30
Ammonia (mg/L)	0.107	0.209	0.366	For July 10.5/31.0
TKN (mg/L)	1.55	1.91	2.13	NA
Nitrate+Nitrite (mg/L)	14.8	16.7	19.5	NA
Total Nitrogen (mg/L)	16.4	18.6	21.6	NA
Total Phosphorus (mg/L)	1.94	2.33	2.72	NA
Chlorides(mg/L)	149	167	181	399/631
Copper (mg/L)	0.0102	0.00954	0.00943	0.0174/0.0270
Temperature (°C)²	19.6	19.0	18.0	NA
pH²	8.12	7.55	7.45	6.5-9.0
Flow in MGD	NA	NA	NA	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, NFS, Copper, and Chlorides are by 7-day Averages followed by 30-day Averages. Limits for Ammonia are 30-day Averages followed by Daily Maximum.

⁴ND= No Detection

Table 3: Analytical Results for Biosolids Sample Collected During Inspection reported as Milligrams per Kilograms (mg/kg dry)

Parameter	July 18 2400300-03
Aluminum	3760
Antimony	ND
Arsenic*	22.2
Barium	689
Beryllium	ND
Cadmium*	ND
Calcium	52000
Chromium	21.9
Cobalt	ND
Copper*	441
Iron	13800
Lead*	26.1
Magnesium	9730
Manganese	831
Molybdenum*	6.63
Nickel*	16.6
Potassium	2550
Selenium	26.1
Silver*	ND
Sodium	8530
Thallium	ND
Vanadium	ND
Zinc*	728
Mercury*	2.03
% Solids	1.85
TKN	17300
Total Phosphorous	5830

*40 CFR Part 503 Metals

Results from sampling conducted during the inspection indicate that the facility was in compliance with effluent limits set in the NPDES permit for the sampling conducted during the inspection.

Biosolids (sludge)

As mentioned above, the facility utilizes an anaerobic digester and a concrete storage basin to treat and store biosolids until it is land applied to agricultural fields by a third-party contractor.

During the inspection, I received electronic copies of the 2021, 2022, and 2023 biosolids reports. I reviewed the sampling data, and it appears to meet the requirements of 40 CFR Part 503. After my review, I placed the annual reports into the ECAD electronic file for the facility.

According to the 2021, 2022, and 2023 biosolids sampling results, the facility meets the Pathogen Reduction requirements for producing “Class B” biosolids by anaerobic digestion. The reports also state that the biosolids are directly injected into the soil during land application, therefore, meeting the vector attraction reduction (VAR) requirement.

Laboratory

The facility utilizes Agri-Source (IA-LAB #061) for all regulatory analysis. During the inspection, I reviewed the laboratory records to ensure that all analysis complied with requirements of 40 CFR part 136. My review indicated that all holding times were being met and that all analytical methods appeared to be in compliance with 40 CFR Part 136.

Collection System

During the inspection, I discussed the city’s collection system with Mr. Hagen. Mr. Hagen estimated that the city has approximately 25 miles of sanitary sewer and includes two lift stations. Mr. Hagen stated that the city contracts to have approximately one quarter of the sewer lines cleaned each year. He stated he projects that all the sanitary sewer lines will be televised by the end of 2024. He also stated that the city has recently lined approximately six miles of sanitary sewer line and the city is in the process of identifying other areas of the collection system that will be lined in the future.

Mr. Johnson and I observed both lift stations during the inspection. The first lift station is located at the WWTF and receives wastewater from the school complex which is located northwest of the WWTF. The second lift station is located on the north end of town and receives wastewater from residential areas. I observed the wet wells of each station and noted that each station was well maintained. I also noted that audible and or visual alarms were at each station. Each station was also equipped with an auto-dialer in case there was a problem at the station.

Industrial Users

During the inspection, I noted that the NPDES permit states that the facility does not have any industrial users discharging process wastewater to the sanitary sewer system. During the observations at the WWTF, I noted foaming in the influent and throughout the plant (photos 1-4 & 10-11). Mr. Hagen and Mr. Johnson stated that National Purity was a soap blender in town.

They stated that the foam was caused by them, and it was a normal occurrence. Below is a description of an investigation that I conducted at National Purity on July 17, 2024.

National Purity

On July 17, 2024, I conducted an investigation of National Purity. National Purity is located at 225 9th Avenue, NW, Britt, IA. I spoke with Mr. Jason Henken, the facility manager, and Mr. Jeff Mahoney, the operations manager for National Purity. Mr. Jeff Mahoney participated via phone. National Purity blends various industrial cleaners and soaps that have a wide variety of applications including household cleaners, car wash soaps, degreasers, and other detergents. According to Mr. Henken, the facility blends concentrated cleaners with water purchased from the city of Britt, then repackages the product for wholesale distribution. He stated that the facility has tanks volumes that vary from 200 gallons to 4,000 gallons (photos 16 & 19) and that all blending is done in batches. He stated that after each batch, the tanks are cleaned out and process wastewater from the clean out process is discharged into the sanitary sewer system in two different locations of the facility (photos 17, 18, 20). I explained to Mr. Henken of the soap foam that I had previously observed at the WWTF. Mr. Henken stated that they had cleaned out a large tank on July 16, 2024, that was used to blend car wash soap. After leaving National Purity, Mr. Hagen provided a water usage statement for National Purity. According to the statement, in 2024 the facility has an average water use of 32,411 gallons per month. There is currently not a way to determine how much of that average water usage is discharged to the sanitary sewer system.

After the conclusion of the investigation, I looked at the company's web site, <https://www.nationalpurity.com/>, and noted that most of the car wash soaps were high foaming, alkaline soaps. I also noted that the National Purity listed all the Safety Data Sheets for their products on their website.

Due to the type of blending that is occurring at National Purity, the facility may be subject to the pretreatment requirements of Chapter 40 of the Code of Federal Regulations Part 417 Subpart H and P.

Operational Issues and Observations

1. I observed all areas of the WWTF during the inspection (photos 1-15). I noted that all units were operating and functional at the time of the inspection.
2. As mentioned previously, the facility has a permitted bypass used during wet weather events. During the inspection, I observed the bypass (photo 2). Mr. Hagen stated that he reports the bypasses as required on the monthly operation reports. He also reports to the IDNR field office separately each time there is a bypass. Mr. Hagen provided copies of the bypass reports. After reviewing the reports, I placed copies into the ECAD electronic file system. The NPDES permit states that, "Bypasses from any portion of a treatment facility or from a sanitary sewer collection system designed to carry only sewage are prohibited."

3. During the inspection, I observed the receiving stream. According to the NPDES permit, the facility discharges treated wastewater into Drainage Ditch #105. Effluent flows approximately 2.70 miles south then enters the Middle Branch of the Boone River along 200th Street. During my observations of the receiving stream, I noted that the receiving stream was free and clear of solids.
4. The NPDES permit has a Schedule of Compliance which requires annual reports on the improvements made to the sanitary sewer system. Mr. Hagen provided the 2024 annual report as required by the Schedule of Compliance (attachment 8). Mr. Hagen stated that once the city's public water supply improvements (new water plant) are completed, that city will be exploring the feasibility or replacing the current WWTF with a new one.

Summary

The Britt WWTF continues to have sporadic effluent violations for Copper, TSS, and BOD. Mr. Hagen stated that the city has investigated sources of copper and have not been able to find a significant source or cause of the Copper. Mr. Hagen stated that the hope of a new water plant (reverse osmosis) will help in reducing the Copper in the wastewater.

Although the constructed bypass is a permitted outfall, there are no monitoring requirements for the bypassed wastewater except for reporting that a bypass occurs. NPDES permit language prohibits the bypass of untreated wastewater.

The city has an industrial source of process wastewater (National Purity) that may be subject to pretreatment regulations.

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Attachments:

1. Water Compliance Inspection Report, Form 3560-3 (4 pages)
2. EPA Region 7 Biosolids Checklist (3 pages)
3. Digital Photographs with Photo Log (24 pages)
4. Facility Satellite Photos/Maps (2 pages)
5. NPDES permit issued on 9/1/2021 (19 pages)
6. NOPF (1 page)
7. Laboratory Analytical Report for Activity JAH2420 (26 pages)
8. Schedule of Compliance 2024 Annual Report (2 pages)