NPDES/ SPDES Compliance Sampling Inspection Report

Village of Liberty Wastewater Treatment Plant (WWTP)

Willow Lane, Liberty, NY 12754

SPDES Permit: NY0030074

Inspection Dates: September 6-7, 2023

Report Prepared by:

MOLLY HILLENBRAND Digitally signed by MOLLY HILLENBRAND Date: 2023.10.11 11:42:59 -04'00'

Molly Hillenbrand, Life Scientist

Report Reviewed by:

ROBERT MORRELL Digitally signed by ROBERT MORRELL Date: 2023.10.11 12:31:30 -04'00'

Robert Morrell, Geologist

Report Approved by:

PHILIP COCUZZA Digitally signed by PHILIP COCUZZA Date: 2023.10.11 13:09:18 -04'00'

Phil Cocuzza, Chief
Monitoring Operations Section

1.0 OBJECTIVE

On September 6-7, 2023, at the request of the New York State Department of Environmental Conservation (NYSDEC) the United States Environmental Protection Agency (USEPA) conducted a National Pollutant Discharge Elimination System (NPDES) Compliance Sampling Inspection (CSI) at the Village of Liberty Wastewater Treatment Plant (WWTP) in Liberty New York (NY). The objective of the CSI was to gather information necessary to determine compliance with the requirements and limitations of their NPDES/SPDES permit No. NY0030074.

2.0 KEY PARTICIPANTS

Listed below are key inspection participants and contact information, grouped by organization.

U.S. Environmental Protection Agency
Molly Hillenbrand, Lead Inspector
Hillenbrand.molly@epa.gov, 732-321-4452
Robert Morrell, Geologist

Village of Liberty Wastewater Treatment Plant
Mark Kellam, Working Supervisor/ Operator
mskellam12754@gmail.com, 845-866-1909

3.0 FACILITY DESCRIPTION

3.1 General Information

The Village of Liberty WWTP is located at Willow Lane, Liberty, NY 12754 and began operations in 1985. The facility has a treatment design capacity of 2 million gallons per day (MGD) with the average flow through the plant of 0.6 MGD. The sewer connections receive wastewater from residential, commercial, and industrial sources from the Village of Liberty and an adult care facility from the surrounding Town of Liberty. The Village of Liberty WWTP employs one full-time city operator and two contracted H2O Innovation employees. The facility operates 24 hours a day, 7 days a week, with business hours Monday through Friday from 6:30 to 3:00 pm.

The Village of Liberty WWTP facility is categorized as Standard Industrial Classification (SIC) 4952 – Sewerage Systems and the North American Industry and Classification System (NAICS) 221320 – Sewage Treatment Facilities.

3.2 Process Information

Influent wastewater entering the headworks is intercepted by a manual bar screen to prevent large matter from entering the treatment system. Following the manual bar screen, the flow continues to the Parshall flume. The approaching flow through the Parshall flume is measured by an ultrasonic flow sensor. The wastewater continues to a mechanical bar screen to remove rags and large matters followed by aerated grit chambers allowing heavy solids to

settle out. Proceeding the aerated grit chambers, the wastewater passes through a fine screen removing material greater than 6 mm in diameter. Following fine screening, the wastewater continues to one of the two oxidation ditches. Polyaluminium chloride (PAC) is added at the oxidation ditch for phophorous removal. From the oxidation ditch, wastewater proceeds to one of the two circular secondary clarifiers. The clarified wastewater continues to Ultraviolet (UV) Disinfection Systems. Effluent is disinfected seasonally between May 15 to October 15. The treated wastewater enters a post aeration basin and is discharged to the Middle Mongaup River, located across Route 17 at Outfall 001.

Grit removed from the grit removal system are collected in a dumpster and disposed of by TAM Enterprises. Solids removed from the screening processes are disposed of at the local landfill. Filtrate from screening and grit removal continues to the plant for treatment. Sludge from the secondary clarifiers is either returned to the oxidation ditch as Return Activated Sludge (RAS) or pumped into the holding tank as Waste Activated Sludge (WAS). Sludge is conveyed to the belt filter press for dewatering. The dewatered sludge is collected and disposed of by TAM enterprises.

3.3 Facility Self-Monitoring Information

Permit compliance samples are collected by plant personnel. Plant personnel perform on-site analysis for temperature, settleable solids, and pH. Sample analyses for 5-Day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), ammonia, Total Kjeldahl Nitrogen (TKN), total phosphorous and fecal coliforms are contracted to Sullivan County Labs, 86 Queen Mountain Rd, Ferndale, NY 12734.

4.0 EPA SAMPLING/INSPECTION ACTIVITIES

4.1 Sampling Activities

An ISCO automatic composite sampler was set up at the effluent (Outfall 001) monitoring location. The automatic composite sampler was packed with ice to ensure sample preservation and programed to collect 96 sample aliquots during the 24-hour sampling period. The 24-hour composite sample was collected and analyzed for CBOD5, TSS, TKN, and total phosphorous. On-site grab samples were collected at Outfall 001 and analyzed for pH, temperature, settleable solids, and Total Residual Chlorine (TRC). Five direct-grab samples were also collected for fecal coliforms.

In addition, an ISCO automatic composite sampler was set up at the influent monitoring location. The automatic composite sampler was packed with ice to ensure sample preservation and programed to collect 96 sample aliquots during the 24-hour sampling period. The 24-hour composite sample was collected and analyzed for $CBOD_5$ and TSS.

All sample containers, preservation techniques and holding times were in accordance with USEPA requirements specified in 40 CFR Part 136. All samples were transported on ice to the USEPA Laboratory in Edison, New Jersey for analysis. A chain of custody form

recorded sampling and handling activity (Attachment 1). Flow data was obtained directly from the Village of Liberty's WWTP instrumentation.

The facility representative declined the EPA offer for split samples.

4.2 Inspection Activities

A NPDES CSI was conducted at the Village of Liberty WWTP located at Willow Lane, Liberty, NY 12754. The inspectors met with Mark Kellam the working supervisor/operator with the Village of Liberty WWTP. Inspector credentials were presented, and contact information was exchanged. Inspectors explained to the facility's representative that the inspection was to determine if the facility is in compliance with their SPDES permit, NY0030074. A physical inspection occurred, assisted by facility staff, to observe and evaluate the wastewater treatment process, sampling and flow monitoring equipment, and effluent and influent monitoring locations. Observations and concerns were communicated to facility staff throughout the inspection and reiterated during the closing conference. Inspection findings observed through the facilities physical inspection are listed in Section 6.2.

4.3 Deviations and/or Environmental Conditions

At the time of the inspection the manual bar screen at the head of the influent line was being replaced. In addition, the facility was in the process of upgrading/ installing a belt filter press.

5.0 ANALYTICAL RESULTS

Village of Liberty WWTP
September 6-7, 2023

Parameter	Location	Units	NPDES Permit Limitation	EPA Result
Flow	Inf.	MGD	2.0 (30-day arithmetic mean)	0.68
$CBOD_5$	Inf.	mg/L	Monitored	172
$CBOD_5$ *	Eff.	mg/L	25 (30-day arithmetic mean) 40 (7- day arithmetic mean)	U
$CBOD_5$ % Removal *	____	%	≥ 85%	99 %
$CBOD_5$ *	Eff.	lb/day	417 (30-day arithmetic mean) 667 (7- day arithmetic mean)	11.4
TSS	Inf.	mg/L	Monitored	145
TSS *	Eff.	mg/L	30 (30-day arithmetic mean) 45 (7- day arithmetic mean)	U
TSS % Removal *	_____	%	≥ 85%	93 %
TSS	Eff.	lb/day	500 (30-day arithmetic mean) 751 (7- day arithmetic mean)	56.8

Parameter	Location	Units	NPDES Permit Limitation	EPA Result
Ammonia (NH_3) *	Eff.	mg/L	1.4 (30-day arithmetic mean)	0.161
Nitrogen, TKN	Eff.	mg/L	Monitor	0.971
Total Phosphrous	Eff.	mg/L	1.0 (daily maximum)	0.484
Fecal Coliforms	Eff.	No./100 ml	200 (30- day arithmetic mean) 400 (7- day arithmetic mean)	46.0 (Geometric Mean)
Temperature	Eff.	Deg C	Monitor	22.0
pH	Eff.	SU	6.5-8.5	7.49
Settleable Solids	Eff.	ml/L	0.1 (daily maximum)	0
Chlorine, Total Residual	Eff.	mg/L	0.1 (daily maximum)	0.08

U- The analyte was not detected at or above the Reporting Limit.
The reporting limits of 2.0 mg/l and 10 mg/l was used to calculate the mass loading for CBOD5 and TSS respectively.

6.0 FINDINGS

6.1 Sampling Result Findings

The EPA analytical results obtained during this inspection are within the acceptable limits.

6.2 Inspection Findings

In addition to the sampling, an inspection of the facility operations was conducted as discussed in Section 4.2 above. Nothing was observed or noted during the inspection that contravened the requirements of the permit or the applicable regulations.

7.0 ATTACHMENTS

Attachment 1: USEPA Chain of Custody for Samples was submitted to the USEPA Region 2 Laboratory in Edison, NJ on Thursday, September 7, 2023

Attachment 2: USEPA Analytical Data Package was received on September 25, 2023

Attachment 1: Samples were submitted to the USEPA Laboratory in Edison, New Jersey for analysis on 09/07/23

US EPA REGION 2 LABORATORY

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CHAIN OF CUSTODY/ FIELD DATA FORM

SURVEY NAME & LOCALITY ___ Village of Liberty WWTP

PROJECT LEADER _____ Molly Hillenbrand

PROGRAM: SF ☐ : SITE ID _____ OPERABLE UNIT _____ PROGRAM RESULTS CODE _____

Decision		RCRA ☐	RCRA ENF ☐	NPDES ☐	SDWA ☐	AM ☐	CAA ☐	TSCA ☐	OD ☐	FIFRA ☐	CRIMINAL ENF ☐
Unit Code	Y206	D210	D307	B304	C215	B224	A305	L306	B253		

Permit #: NY0030074

LAB ID/ FIELD ID	# OF CONTERS	MATRIX	CHECK IF SPLIT SAMPLE	DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS, SPECIAL TEST REQUIREMENTS & ALIQUOTING	Res CL Checked	Preservative (circle)	Collection Time (24hr clock) Begin	Collection Time (24hr clock) End	Collection Date mm/dd/yy
Outfall 001	2	A	☐	2, 1000 ml Plastic Bottles: CBOD5 24-hour Comp.	☐	0	8:23	8:35	9/6-7/2023
	1	A	☐	1, 500 ml Plastic Bottles: TSS 24 hour Comp.	☐	0	8:23	8:35	9/6-7/2023
	1	A	☐	1, 500 ml Plastic Bottle: Phosphorous, TKN, Ammonia, 24 hr Comp.	☐	1	8:23	8:35	9/6-7/2023
Outfall 001 Grab	1	A	☐	1, 290 ml sterilized plastic, Fecal Coliform Grab #1	☐	0		9:10	9/7/2023
	1	A	☐	1, 290 ml sterilized plastic, Fecal Coliform Grab #2	☐	0		9:25	9/7/2023
	1	A	☐	1, 290 ml sterilized plastic, Fecal Coliform Grab #3	☐	0		9:40	9/7/2023
	1	A	☐	1, 290 ml sterilized plastic, Fecal Coliform Grab #4	☐	0		9:55	9/7/2023
	1	A	☐	1, 290 ml sterilized plastic, Fecal Coliform Grab #5	☐	0		10:10	9/7/2023
Influent	1	A	☐	1, 1000 ml Plastic Bottle: CBOD5 24-hour Comp.	☐	0	8:51	8:52	9/6-7/2023
	1	A	☐	1, 250 ml Plastic Bottles: TSS 24 hour Comp.	☐	0	8:51	8:52	9/6-7/2023

COMMENTS & SPECIAL REQUIREMENTS:

Sterilized Bottle Tracking #:

Preservative Added & Checked

0=ice
1=H2SO4 pH<2
2=HNO3 pH<2
3=HCl pH<2
4=Na2S2O3
5=NaOH pH>9
6=Ascorbic Acid
7=FAS
8=ZnAc
9=NaOH pH>12
10=NH4Cl

	Time	Date
Person ~~Assuming~~ Responsibility for Sample(s): Molly Hillenbrand	13:15	09/07/23
Relinquished By: Molly Hillenbrand / Received By:	13:15	9/7/23
Relinquished By: / Received By:		
Relinquished By: / Received By:		

Matrix:

A=aqueous
B=aqueous (chlorinated)
C=soil
D=sediment
E=sludge
F=multiphasic
G=solvent
H=biota
I=oil
J=other

Survey Complete? Y ☐ N ☐

Direct from Sampling, chilling, titrated. 9/7/23

revised 10/25/2004

Note: Sterilized bottle tracking number is L1K0870

Attachment 2: USEPA Analytical Data Package was received on September 25, 2023

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 2 Laboratory
2890 Woodbridge Avenue
Edison , New Jersey 08837
732-906-6886 Phone
732-906-6165 Fax

September 25, 2023

Molly Hillenbrand
Monitoring & Assessment Branch
LSASD/MAB
Edison, NJ 08837

RE: Village of Liberty WWTP - 2309011

Enclosed are the results of analyses for samples received by the laboratory on 09/07/2023. The signature below reflects the laboratory's approval of the reported results. If you have any questions concerning this report, please refer to Project Number 2309011 and contact the laboratory.

Sincerely,

John R. Bourbon
Chief, LSASD/LB

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 2 Laboratory

Final Report

Project: Village of Liberty WWTP - 2309011

Project Number: 2309011

Project Narrative:

The National Environmental Laboratory Accreditation Conference Institute (TNI) is a voluntary environmental laboratory accreditation association of State and Federal agencies. TNI established and promoted a National Environmental Laboratory Accreditation Program (NELAP) that provides a uniform set of standards for the generation of environmental data that are of known and defensible quality. The EPA Region 2 Laboratory is NELAP accredited. The Laboratory tests that are accredited have met all the requirements established under the TNI Standards.

Condition Comments

None

Comment(s):

The "Sample Analysis Date and Time" is included in the results section for any analyte with a prescribed holding time of 72 hours or less.

Data Qualifier(s):

U- The analyte was not detected at or above the Reporting Limit.
J- The identification of the analyte is acceptable; the reported value is an estimate.
K- The identification of the analyte is acceptable; the reported value may be biased high.
L- The identification of the analyte is acceptable; the reported value may be biased low.
NJ- There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification. The reported value is an estimate.

Final Report

Project: Village of Liberty WWTP - 2309011

Project Number: 2309011

Reporting Limit(s):

The Laboratory was able to achieve the appropriate limit for each analyte requested.

SUMMARY REPORT FOR SAMPLES

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
Outfall 001	2309011-01	Aqueous	09/07/2023 08:35	09/07/2023 13:15
Outfall 001 Grab#1	2309011-02	Aqueous	09/07/2023 09:10	09/07/2023 13:15
Outfall 001 Grab#2	2309011-03	Aqueous	09/07/2023 09:25	09/07/2023 13:15
Outfall 001 Grab#3	2309011-04	Aqueous	09/07/2023 09:40	09/07/2023 13:15
Outfall 001 Grab#4	2309011-05	Aqueous	09/07/2023 09:55	09/07/2023 13:15
Outfall 001 Grab#5	2309011-06	Aqueous	09/07/2023 10:10	09/07/2023 13:15
Influent	2309011-07	Aqueous	09/07/2023 08:52	09/07/2023 13:15

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 2 Laboratory

Final Report

Project: Village of Liberty WWTP - 2309011

Project Number: 2309011

SUMMARY REPORT FOR METHODS

Analysis	Method	Certification	Matrix
Ammonia [As N]	EPA 350.1 SOP C-80 Rev 2.8	NELAP	Aqueous
Biochemical Oxygen Demand, Carb.	SM 5210B SOP C-21 Rev 2.8	NELAP	Aqueous
Coliform, Fecal	SM9221B,E / SOP B-8 Rev 2.8	NELAP	Aqueous
Nitrogen, Total Kjeldahl	EPA 351.2 SOP C-40 Rev2.8	NELAP	Aqueous
Phosphorus	EPA 365.1 SOP C-68 Rev 2.8	NELAP	Aqueous
Residue, Non-Filterable	SM 2540D SOP C-33 Rev 3.8	NELAP	Aqueous

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Project: Village of Liberty WWTP - 2309011

Project Number: 2309011

Analyte	Result	Qualifier	Reporting Limit	Units	Batch	Date and Time of Analysis*
Field ID: Outfall 001			**Sample ID: 2309011-01**			
Sanitary						
Ammonia [As N]	0.161		0.100	mg/L	B309079	
Biochemical Oxygen Demand, Carb.	---	U	2.00	mg/L	B309037	09/12/2023 10:43
Nitrogen, Total Kjeldahl	0.971		0.100	mg/L	B309077	
Phosphorus	0.484		0.0500	mg/L	B309078	
Total Suspended Solids	---	U	10.0	mg/L	B309025	
Field ID: Outfall 001 Grab#1			**Sample ID: 2309011-02**			
Microbiology, MPN						
Coliform, Fecal	17		1.8	MPN/100 mL	B309022	09/08/2023 13:25
Field ID: Outfall 001 Grab#2			**Sample ID: 2309011-03**			
Microbiology, MPN						
Coliform, Fecal	45		1.8	MPN/100 mL	B309022	09/08/2023 13:35
Field ID: Outfall 001 Grab#3			**Sample ID: 2309011-04**			
Microbiology, MPN						
Coliform, Fecal	130		1.8	MPN/100 mL	B309022	09/08/2023 13:40
Field ID: Outfall 001 Grab#4			**Sample ID: 2309011-05**			
Microbiology, MPN						
Coliform, Fecal	45		1.8	MPN/100 mL	B309022	09/08/2023 13:50
Field ID: Outfall 001 Grab#5			**Sample ID: 2309011-06**			
Microbiology, MPN						
Coliform, Fecal	45		1.8	MPN/100 mL	B309022	09/08/2023 13:55

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Project: Village of Liberty WWTP - 2309011

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Analyte	Result	Qualifier	Reporting Limit	Units	Batch	Date and Time of Analysis*
Field ID: Influent			**Sample ID: 2309011-07**			
Sanitary						
Biochemical Oxygen Demand, Carb.	172		2.00	mg/L	B309037	09/12/2023 10:43
Total Suspended Solids	145		10.0	mg/L	B309025	

Final Report

Project: Village of Liberty WWTP - 2309011

Project Number: 2309011

Sanitary - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B309025									
Blank (B309025-BLK1)									
Residue, Non-Filterable	--- U	10.0	mg/L						
LCS (B309025-BS1)									
Residue, Non-Filterable	96.0	10.0	mg/L	96.70		99.3	85-115		
LCS Dup (B309025-BSD1)									
Residue, Non-Filterable	95.0	10.0	mg/L	96.70		98.2	85-115	1.05	20
Duplicate (B309025-DUP1)	**Source: 2309011-07**								
Residue, Non-Filterable	140	10.0	mg/L		145			3.51	20
Batch B309037									
Blank (B309037-BLK1)									
Biochemical Oxygen Demand, Carb.	--- U	2.00	mg/L						
LCS (B309037-BS1)									
Biochemical Oxygen Demand, Carb.	174		mg/L	198.0		87.9	84.6-115.4		
LCS (B309037-BS2)									
Biochemical Oxygen Demand, Carb.	167		mg/L	198.0		84.1	84.6-115.4		
LCS (B309037-BS3)									
Biochemical Oxygen Demand, Carb.	213		mg/L	198.0		108	84.6-115.4		
Duplicate (B309037-DUP1)	**Source: 2309011-07**								
Biochemical Oxygen Demand, Carb.	164	2.00	mg/L		172			4.59	25

Final Report

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Project Number: 2309011

Sanitary - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B309037									
Matrix Spike (B309037-MS1)		**Source: 2309011-07**							
Biochemical Oxygen Demand, Carb.	520	2.00	mg/L	396.0	172	87.9	75-125		
Matrix Spike Dup (B309037-MSD1)		**Source: 2309011-07**							
Biochemical Oxygen Demand, Carb.	670	2.00	mg/L	396.0	172	126	75-125	25.2	200
Batch B309077									
Blank (B309077-BLK1)									
Nitrogen, Total Kjeldahl	--- U	0.100	mg/L						
Blank (B309077-BLK2)									
Nitrogen, Total Kjeldahl	--- U	0.100	mg/L						
LCS (B309077-BS1)									
Nitrogen, Total Kjeldahl	13.7	0.200	mg/L	12.40		110	90-110		
LCS Dup (B309077-BSD1)									
Nitrogen, Total Kjeldahl	13.7	0.200	mg/L	12.40		110	90-110	0	20
Matrix Spike (B309077-MS1)		**Source: 2309011-01**							
Nitrogen, Total Kjeldahl	5.32	0.100	mg/L	4.000	0.971	109	90-110		
Batch B309078									
Blank (B309078-BLK1)									
Phosphorus	--- U	0.0500	mg/L						

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Sanitary - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B309078									
Blank (B309078-BLK2)									
Phosphorus	--- U	0.0500	mg/L						
LCS (B309078-BS1)									
Phosphorus	8.67	0.250	mg/L	8.450		103	90-110		
LCS Dup (B309078-BSD1)									
Phosphorus	8.71	0.250	mg/L	8.450		103	90-110	0.5	20
Matrix Spike (B309078-MS1)	**Source: 2309011-01**								
Phosphorus	1.44	0.0500	mg/L	1.000	0.484	96	90-110		
Matrix Spike (B309078-MS2)	**Source: 2309019-02**								
Phosphorus	7.55	0.500	mg/L	1.000	7.05	50	90-110		
Batch B309079									
Blank (B309079-BLK1)									
Ammonia [As N]	--- U	0.100	mg/L						
Blank (B309079-BLK2)									
Ammonia [As N]	--- U	0.100	mg/L						
LCS (B309079-BS1)									
Ammonia [As N]	7.79	0.100	mg/L	8.340		93	90-110		
LCS Dup (B309079-BSD1)									
Ammonia [As N]	7.70	0.100	mg/L	8.340		92	90-110	1	20

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Sanitary - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B309079									
Matrix Spike (B309079-MS1)		**Source: 2309011-01**							
Ammonia [As N]	4.89	0.100	mg/L	5.000	0.161	95	90-110		
Matrix Spike (B309079-MS2)		**Source: 2309019-02**							
Ammonia [As N]	167	5.00	mg/L	5.000	175	NR	90-110		

NOTE: The results recorded in this report relate only to the samples as received on the date and at the time noted